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NATIONAL ASSOCIATION
OF
COST ACCOUNTANTS
YEAR BOOK
1938

PROCEEDINGS OF THE
NINETEENTH INTERNATIONAL COST CONFERENCE

Palmer House
Chicago, Illinois
June 20, 21, 22, 23, 1938



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SESSION I

COST CONTROL AND ECONOMIC PROGRESS

TUESDAY MORNING, JUNE 21, 1938

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Motors Corporation, Harrison, N. J., *Chairman*

Presiding Officer at all sessions, President WILLIAM F. MARSH,
Resident Partner, Lybrand, Ross Bros. and Montgomery,
Pittsburgh, Pa.

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- H. D. ANDERSON, Resident Partner, Scovell, Wellington and
Company, Syracuse, N. Y.
- E. A. AUSTIN, Auditor, Hammermill Paper Company, Erie, Pa.
- M. A. MOORE, Controller, Hyatt Bearings Division of General
Motors Corporation, Harrison, N. J.

A. T. BROWN was born in London, England and came to this country as a boy of seventeen. Beginning as a clerk with a farm machinery jobber in Texas, he spent several years in the farm and industrial machinery business in Texas, Oregon, and California. During this period, he found time to become an attorney in Oregon, but never practiced law. Accounting was his next field of interest, but here he supplemented study with practice, and was associated for several years with the San Francisco office of Price, Waterhouse & Co. He also served as Controller of Miller and Lux, Inc., the largest land and cattle operators of the Far West, until they liquidated. Mr. Brown is now Executive Vice President of the Caterpillar Tractor Company, with offices in Peoria, Illinois.

WARREN H. SAPP has been connected with Armour and Company for the last thirty-seven years. Entering the Kansas City plant as a laborer in 1902, he had become clerk and foreman when he was transferred in 1906 to the Fowler Packing Company of Kansas City, an Armour subsidiary. Here he served as timekeeper and cost and departmental accountant until 1912, when he joined the parent company as Departmental Accountant. Transferred to the Fort Worth, Texas plant in 1915, he assumed the additional duties of Office Manager. Three years later he was called to Chicago to become General Departmental Accountant, advanced in 1921 to General Auditor, and in 1925 was made Assistant Controller and Assistant Secretary. Since 1931, he has been General Manager of the Chicago plant of Armour and Company. Mr. Sapp is a Director of the Chicago Safety Council, a member of the Board of Managers of the Hyde Park Y. M. C. A., and a Past President of the Illinois Manufacturers' Cost Association. A member of the Chicago Chapter, he has appeared before several N.A.C.A. chapters as speaker.

COST CONTROL AND ECONOMIC PROGRESS

The opening session of the Nineteenth International Cost Conference of the National Association of Cost Accountants, held at the Palmer House, Chicago, Illinois, was called to order on Tuesday morning, June 21, 1938, at ten o'clock by the President, William F. Marsh.

PRESIDENT MARSH: It is my very great pleasure this morning to officially open this, our Nineteenth Annual Cost Conference.

Commencing last October, a group of members of the Chicago and surrounding chapters have been meeting regularly to plan your entertainment, and it is now my pleasure to introduce to you, Tom Fleming, General Chairman of that Committee under whose guidance the Committee has functioned. I am going to ask him to pinch-hit for the Mayor of Chicago in extending to you a welcome to the city.

TOM P. FLEMING: This gracious reception is ample reward for our efforts during the past few months. I want particularly to thank the neighboring chapters, Milwaukee, Rockford and South Bend, for their participation. We had problems of distance to overcome and we could not ask them to attend our Committee meetings, but they have certainly been an important factor in making this Convention a success. I want everyone to feel welcome and to participate in the activities. We are sure that you will enjoy them, and we will enjoy seeing you enjoy them.

PRESIDENT MARSH: That Mr. Fleming and his Committee have done an excellent job you will discover as the days unfold. Another committee has been working equally long on the technical program. This year there was possibly more than the usual thought given to the general theme of the sessions. From various suggestions it was finally decided by the Committee and the National Board to build the technical sessions around the subject of "Cost Control." That decision, made months ago, was particularly fortunate, it seems to me, in view of present business conditions.

I am not going into any detail as to the scope of the program. I am going to let the Chairman tell you that. But first I think it is appropriate to relate an experience of a friend of mine. He was approached

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on the street by a panhandler. This fellow came up to him and said, "Mister, will you please give me a dollar?" My friend didn't like the attitude of the fellow and he said, "Listen here, my man. What do you mean asking me for a dollar? Why didn't you ask for a dime?" To which the panhandler replied, "Listen, mister. It is all right with me whether you give me a dollar or not, but please don't tell me how to run my business."

We are not going to attempt to tell you how to run your business, but we are going to try to cover the subject of cost control. The Chairman of the Technical Program Committee needs no introduction. He was the first President of our Washington Chapter. He was a member of the Program Committee at our New York Convention. He is at present National Director in charge of Publications. It is my very great pleasure to present to you, Mr. Arthur Gunnarson.

CHAIRMAN GUNNARSON: For a number of years it has been a custom at conventions of this Association to allow the Chairman of the Program Committee to occupy the platform for a few minutes at the opening session so that he may say something about the technical program and introduce the members of the Program Committee on whose shoulders fall the duties of conducting the several technical sessions. For this privilege and opportunity of appearing before the members of the Association I am, indeed, most grateful.

First, I want to thank most sincerely the members of the Program Committee who have labored patiently and energetically during the past few months with the problems of rounding out the program which will be presented.

Preparation for a convention of this kind is by no means a haphazard task, quite the contrary. Members of the Committee have been concerned with this program since last October. There have been frequent consultations, not only among members of the Committee, but with national directors, chapter officers, individual members, and last, but not least, with Dr. McLeod and Dr. Marple. To all those who have in one way or another assisted in these preparations I desire, in behalf of the Program Committee, to express heartfelt thanks. Without the interest and co-operation of many, there would be little to offer in the form of a program.

Secondly, I desire to introduce the members of the Committee whose generous and unselfish contribution of their time and energies has made possible this program. Each member of the Committee will act as chairman of the sessions for one day.

The Chairman for today's sessions will be Martin A. Moore of Harrison, New Jersey. He is Controller of the Hyatt Bearings Division of General Motors Corporation. He was President of the Newark Chapter in 1936-37, and spoke on the subject, "Problems in Application of Uniform Cost Accounting Methods in Manufacturing Industries," at the 1934 Convention in Cleveland.

The Chairman for the sessions on Wednesday will be Emory A. Austin of Erie, Pennsylvania. He is Auditor of the Hammermill Paper Company and a Certified Public Accountant. He was the second President of the Erie Chapter, 1926-27, and served as a National Director, 1930-33.

The Chairman for the sessions on Thursday will be Harry D. Anderson, of Syracuse, New York. He is Resident Manager of Scovell, Wellington and Co., a Certified Public Accountant, a former National Director, and was Chairman of the Program Committee for the 1933 Convention held in New York City.

Finally, a few words about the technical program. Early in the discussions of the Committee and the National Board, it became apparent that no single subject seemed of such fundamental importance to industrial accountants and business generally as the control of costs. Faced not only with uncertain developments in the economic field, but with uncertain developments in the political field as well, business managements could expect nothing else but increased costs. There was evidence of trends toward higher prices for many kinds of materials; insistent demands were being made for higher wage rates and shorter hours; expenditures of federal and state governments reaching all-time peaks, clearly indicated higher and higher tax burdens; and legislatures in state and federal capitals were busily enacting a great multitude of laws designed to place greater restrictions on the operations of private business enterprise.

Before many of these restrictions and inflexibilities were introduced into the business structure, the leeway between costs and selling prices allowed for some carelessness, for some waste, or for some dipping into profits. There was sufficient flexibility to warrant only incidental attention to methods for controlling costs and inefficiencies.

The present situation is far different. Introduction of inflexible elements has reduced the play between the various elements. There is need for closer supervision by management over every element of cost. Use of the most efficient equipment and methods is essential. Cost records must reflect every variation which threatens to encroach

upon the narrow margins available to business. Eternal watchfulness is the price to be paid for business existence.

In the face of these trends and conditions, it seemed to the Committee that the subject of cost control stood out in bold relief as the general theme around which the discussions of the Convention should center. As the time for the Convention has drawn nearer, it has become evident that the importance of cost control in industry and trade has increased. The subject is a most appropriate one, therefore, at this time.

Your Committee has endeavored to bring before members of the Association at this meeting a timely subject and a number of speakers who are qualified by experience to make constructive contributions to discussions of various phases of the underlying theme. The program consists of a series of five co-ordinated sessions, with a sixth session being devoted to an open forum discussion dealing particularly with questions of distribution costs. For this final session we have been fortunate in obtaining four prominent authorities on the subject to act as a discussion panel.

The Committee, believing that members benefit greatly from ample time for discussion, has purposely limited each of the first five sessions to the presentation of two papers. We are confident that this arrangement will permit each speaker to make a clear statement of his subject, and also will allow every member to ask questions and to join in the discussion. The measure of benefit which you will derive from these sessions will depend largely upon your zeal in participating. The opportunity is here, and your Committee is confident that you will not let the discussion periods lag for want of interest.

Now I want to turn the meeting over to Mr. Moore, who will introduce the speakers for the day.

CHAIRMAN MOORE: Two achievements seem to stand out very sharply in the history of industrial America. The first is the mastery of the techniques of mass production and the second, perhaps closely allied with the first, is mastery of the techniques of cost control. These two achievements, I feel, have given us a standard of living far surpassing anything the world has ever known.

Now, when for very many reasons the economic machine seems to stall and progress, temporarily at least, seems to be stopped, it is very important that we come back to the fundamental truth that 150 years of industrial development should have deeply etched into our minds:

There is no royal road to economic progress except through cost control.

As a foundation for the Convention theme, "Control of Industrial Costs," we start with the topic "Cost Control as a Basic Problem of Industry." And for this discussion we turn to a practical operating executive of one of America's leading and most successful companies, a company that practices the principles of scientific cost control.

It is a pleasure, gentlemen, to present to you the Executive Vice President of the Caterpillar Tractor Company, Mr. A. T. Brown.

COST CONTROL AS A BASIC PROBLEM OF INDUSTRY

A. T. BROWN

Executive Vice President, Caterpillar Tractor Company,
Peoria, Ill.

YOUR speaker on this morning's program was to have been Mr. Heacock, who very much appreciated the invitation extended to him to address you and looked forward with much pleasure to being here today. After accepting the invitation he found it necessary to withdraw due to business engagements which have taken him to Europe, and he regrets very much his inability to participate in this cost conference. I also regret his not being here as he could have brought you many thoughts worthy of your consideration.

In considering cost control as a basic problem of industry, I believe we should view it not from the technical standpoint but as a national problem. Control of costs, basically, is a problem not alone of the accountant, of management, or of industry, but of the entire nation. It is from this standpoint that I choose to discuss the subject assigned to me.

Cost control as we have it today is the result of the gradual development of accounting practice, a factor which has become an integral part of our daily life. We may not fully appreciate that, without effective accounting and cost control, our present mode of existence, our method of government and our taxing system would not be possible.

Industrial Life Has Become Simpler for the Individual

Industrial life is generally regarded as being much more complex now than it was in the earlier years of this country's development, but in many respects it is now much simpler for the individual than

formerly. It is only when we view the entire economic structure as it exists today that the relationships which exist within it take on their very complex appearance. The average person today can, if he has the price, buy almost anything he needs or wants from a neighborhood store with no more effort than it takes to order his requirements over the telephone. If he does not have the necessary funds on hand to pay for them on delivery but can satisfy the vendor regarding his willingness and ability to pay within a reasonable period of time, he can still obtain the goods or services he requires.

Supplying an individual's requirements has never been simpler than it is today. It is difficult to conceive of any way in which it could be made more simple. Consider the difficulties of early Americans in their efforts to obtain food, clothing and shelter of the very simplest kind. Most of them built their own houses, raised their own food, and made their own clothing from wool taken from sheep raised on their own farms. Each one of them had to know something about the essentials of production of all his necessities, and so far as he, individually, was concerned, life was a very diversified problem.

Modern Problem Is Basis of Exchanging Industrial Effort

Since those early days, individuals have utilized their special qualifications to supply, in addition to their own needs, certain of the community's requirements and have looked to others in the community to supply some of their own; in so doing, they have developed commerce and industry as we have it today. This could not have been accomplished had not accountants developed simple means of settling financial balances arising out of those commercial transactions. In the early days, the question of balance of income between individuals was not a difficult problem because each could, subject to natural conditions of weather, etc., supply what he needed by producing it. One of the major problems which has arisen with the development of industry is the maintenance of bases of exchange to satisfy all classes of people so that they are provided with purchasing power in proper relation to their productive contribution to society.

Effect of Relative Prices on Industrial Activity

When an individual produced practically all his own requirements, his standard of living might be said to have been governed by his capacity to produce the things which contributed to good living, but later when men produced more than they needed for their own consumption and relied on disposing of their surpluses in exchange for

other things they desired and had not produced, considerations of relative values of the respective products developed.

When the supply of some products is greater than the demand for them and the demand for others is greater than the supply, their relative exchange values, that is, their prices, differ more than the differences in effort and skill to produce them. To the extent of the difference, the incomes of the respective producers may be said to be out of balance; when this occurs, the speed of interchange of products slows down and a business depression exists to the disadvantage of all. The recurrence of these depression periods has led people to seek ways of avoiding them and at the same time keeping the economic system in reasonable balance so that the highest volume of production may be maintained. The manner in which production could be stabilized at a high level has probably generated as much economic thought as any other phase of industrial life.

Effect of Governmental Planning in Preventing Depressions

Because of the effect of depressions on national welfare, governments have sought to attempt economic control through regulation of the activities of their citizens. We have seen much of this in the last few years, and governmental planning has become a subject of major political importance.

It seems to me idle to suppose that a handful of politicians of average intelligence can, because of their association in governmental agencies, be so wise as to know what is best for everyone else in the nation and how each can obtain it. When the collective ability of all the people of a great nation, acting as each believes for his own best interests and doing his best to improve his economic status, cannot prevent depressions, how ridiculous to adopt the belief that this miracle might be accomplished by government.

Incentive to Produce More Effective than Governmental Planning

We should recognize that cycles of prosperity and depression are largely due to the human characteristics of people becoming at times over-optimistic and at other times over-pessimistic. Government cannot change human nature.

Governmental planning will never benefit the nation nearly so much as its citizens can help themselves by using their intelligence and skill to produce the things that they and other people want. Unless the industrial system stimulates a high degree of thinking and effort on

the part of individuals, we cannot have what we are pleased to call a high standard of living.

When the incentive to produce is taken from a large group of people, no matter how it is done, the nation loses much of the value of their productive capacity. Governments all over the world have developed since the War greater control over the industrial life of their citizens. It is true that we have not, in the United States, gone to such extremes as Russia, Germany and Italy, but we do have in this country greater governmental control now than ever before and there are some who seek to go further in that direction. Whether or not we approve of such control, we must recognize that its tremendous cost is a problem of industry and a matter of vital concern to everyone.

Cost Control of Governmental Activities

Industry has severely criticized the New Deal Administration, its lack of economic soundness and intellectual honesty, and among other things its bookkeeping. As for its bookkeeping, I am sure that all of us would be shocked if we knew the details of national waste in the government's annual disbursement of billions of dollars of public funds.

Our system of taxation under which public funds are obtained could never have been developed, nor could governmental regulation and partial control of commerce and industry be maintained, except for the work of accountants in providing means through which those functions could be exercised.

The basis of all accounting is cost control, and if we could get effective governmental control of its own costs, the national budget would be balanced. If the government would adopt for itself accounting practices as sound as it requires of the public for income tax purposes, and would publish its financial data as completely and honestly as the Securities and Exchange Commission requires corporations to do, we would have a better basis for the development of a more intelligent public opinion on national policies and a better control of governmental expenses.

It is particularly of public concern that information on the cost of governmental activities be accurate when comparisons are made between the costs of governmental and private operation of business properties. We have heard a great deal about the T.V.A. yardstick on electric power costs but there seems to be very little *real* power cost data available to the public.

Reasonable regulation of business can be maintained by government without actually engaging in business operations. Too often, it seems, government's entry into business is prompted by the less worthy motive of persecution.

Competition continuously working to restore economic balance would maintain a higher level of employment and a better standard of living for the nation than a high degree of governmental control. Proper reporting of governmental operations with appropriate analyses of the meaning of the financial data presented would go a long way toward educating the public to demand the proper assignment of governmental functions and curtailment of expenses. Elimination of business operations now carried on by the government and improvement in performance of strictly governmental functions would be induced by the broadcasting of factual information on governmental operations.

Governmental Costs

The costs of these operations are a major concern of industry. They are reflected in increased taxes of federal, state and local governments and in growing federal deficits. Taxes applicable to 1938 are estimated by official and semi-official sources of the government to be 23.6 per cent of this year's national income as compared with the 1933 tax rate of 16.9 per cent, which is an increase in the tax ratio of 76 per cent in the last five years. The tax figures are from records of the National Industrial Conference Board and the 1938 estimate of national income is that of President Roosevelt.

The average tax payment of every American citizen will be \$97.10 in 1938 compared with \$59.64 in 1933, an increase of 62.8 per cent.

Taxes and the Consumer

These taxes are being paid by industry's customers and to the extent that they are unnecessary, they deprive industry of the opportunity to serve the public, and they reduce productive employment. When I say the customers pay the taxes I mean that. Taxes are not paid by industry, at least not for very long. Industry is a tax collector and passes on to its customers the burden of taxes assessed directly to it, and in the national interest it should recognize its responsibility to convince the public of this fact.

Franklin D. Roosevelt was right in October 1932 when he stated that:

Taxes are paid in the sweat of every man who labors because they are a burden on production and can be paid only by production. If excessive, they are reflected in idle factories, tax-sold farms, and hence in hordes of hungry tramping the streets and seeking jobs in vain. Our workers may never see a tax bill, but they pay in deductions from wages, in increased cost of what they buy, or (as now) in broad cessation of employment. There is not an unemployed man—there is not a struggling farmer—whose interest in this subject is not direct and vital.

Unfortunately, too few recognize the truth of that statement. Industry can render a major service to the nation by contributing intelligent assistance toward control of taxes and governmental expenditures.

First Essential is to Foresee Public Requirements

The function of industry is to serve the public and to make a profit in the operation if it can. Unless it supplies what the public wants, obviously industry cannot obtain any profit from its investment.

The first essential, therefore, in any process of cost control by an industry is analysis of the public's requirements and constant effort to foresee, so far as that is possible, the probable changes in those requirements. Market and product research may add to the expenses of operation, but they will prove a most effective means of cost control.

The customer, through his purchases, pays all the bills of industry, and no amount of other cost control will be so effective as an intelligent analysis of the public's requirements.

Industry must ascertain what the public wants and must supply these wants at a price the customer is willing to pay. Management's job is to distribute the proceeds between the various groups of labor, management and owners so that each receives an equitable share. If, in the course of the operation, all can be well paid and the customer well served, a satisfactory job will have been done. Management should, however, always bear in mind the interests of the customer, and it should make the price of the product as low as will maintain continued high volume of sales and operations.

Higher Wages in Newer Industries

Wages should be as high as an equitable proportion of the customer's money will permit so that the best grade of employee is attracted to the industry. The average, well-paid employee delivers better value per dollar of wages than an inefficient, poorly-paid one, but we should remember that good wages can only be paid where the cus-

tomer's purchases of the product are at a price sufficient to cover them.

Usually, newer industries which may be subject to little competition can pay better wages than older ones, and sometimes highly mechanized industries can maintain a higher wage level than those mainly dependent on manual labor. This should stimulate the development of new and better products, and better methods of production and distribution so that greater rewards may be earned by employees and management and increased compensation paid to owner-investors for risking their savings in industry. The development of new products is a social duty and is insurance against obsolescence of the industry, and besides that we all like to have a reputation for paying good wages.

The Customer Pays the Wage Bill

But while high wages are greatly to be desired, those industries in which the customer will pay only a low price cannot pay high wages. We should always keep in mind that the customer, in his purchase price, pays the bills, and if he will only pay low wages in that price, then the low-price industries which offer work on that basis and maintain an *equitable* distribution of the proceeds, have their proper place in society and should not be condemned for the low wages they pay. Those industries which pay *low* wages while paying management and owners *well*, however, do not deserve public support.

But adequate compensation for owners and investors is important to employees. If it is unprofitable to invest new money in industry, the wage earner suffers through lack of work as old industries are discouraged from expanding and possible new ones find little inducement to undertake the risks of operation.

Industrial Relations and Labor Costs

Wages paid to employees are but part of industry's labor cost. If the industrial relations policy of a company has been good, the wages paid are approximately the total labor cost, but if relations with employees have been bad and working conditions are poor, then there are unavoidably many things, in addition to wages paid, that must be included as labor costs, such as poor quality and low quantity of work produced, excessive damage to tools and equipment, and danger of labor trouble and cessation of operations. A good industrial relations policy is essential to the best results in any industry, and good employment records are essential to good industrial relations. These

should include records of employee experience and health, and ratings of skill, efficiency and personal habits in the performance of his work. Such information, in addition to rates of wages received and hours worked, is essential for the proper administration of wage rates, promotions, lay-offs and rehiring, and much grief will be avoided by all concerned if adequate data is maintained and intelligently used by the employer. Such information and practice will also go far toward developing and maintaining labor's confidence in the sincerity and integrity of management.

Business cannot *force* labor to accept *any* level of wage rates and should not try. It should be honest in its determination of what is an equitable distribution of the proceeds of industry and should attempt to convince employees of the soundness of the conclusions reached.

There should be a reasonable balance between hourly rates and total cost of the work, so that through high volume of operations, maximum wages per week, month and year are made possible. As I have said before, wage rates are paid by the customer in the purchase price of the product and he will not pay an excessive price very long.

The condition of employee relations in any industry has an important bearing on its costs. Industries in which the employment conditions are good should have more satisfactory costs than industries in which they are bad. Effective development of favorable employee relations will have an important bearing on production cost control.

What *are* employee relations and when are they good? It seems to me they are good when all groups of people in an organization work together harmoniously and so conduct themselves that mutual respect, good-will and co-operation are developed to the economic advantage of all.

Employee relations are bad when a large proportion of the employees are dissatisfied with their employment because of something the company has done that it should *not* have done, or because it has *not* done something it should have done.

Inform the Employees of Company's Condition and Progress

I know of nothing more important for industrial management today than the development of good employee relations, and an important factor in this development is the furnishing of information to employees regarding their company's financial condition and progress. Employees' jobs and their general welfare are very directly related to their employer's success in marketing his product, and current information indicating the trend of his employment will be appreciated by

the employee, even though at times it may indicate his probable lay-off.

The need for employee understanding of company operations was particularly apparent a year ago when unions made their intensive drives toward greater organization.

Industry should help employees understand more of its problems. The frequent publication of operating information requires effective accounting control, and cost information is the major essential in such a program.

Improving Employment Stability

Stability of employment is one of the most important factors in developing satisfactory employee relations, and over a long period it is difficult to maintain. Regardless of the long-range trend of an individual industry, the cycles of general business activity will cause changes in its business volume as conditions become either prosperous or depressed, and these changes will affect employment.

Industry can improve the stability of its operations by studying its markets, and to some extent it can cushion short-range changes in customer demand through accumulation or reduction of its inventories. Obviously, full information and adequate cost control are required by any industry which undertakes a program of this nature. When inventories become burdensome, employment is reduced and stability of workers' earnings ceases.

Pricing in Relation to Cost

In its determination of the proper distribution of the proceeds of industry, and the maintenance of balance between cost of the product and value of the service obtainable by the customer from its use, management is required to establish the unit prices at which it will sell its product to the customer. These prices are a matter of considerable importance, particularly when the volume of business is low, as it is at this time. How much sales volume can be stimulated by a lowering of the price level is not a matter on which there is unanimous opinion, but I believe it is generally conceded that a lower price level tends to increase the range of the market for the product. Selling prices may be based on cost, they may be governed by competitive conditions within the industry regardless of costs, or they may have no consistent basis other than that they are all the traffic will bear.

Management's long-range objective in pricing its products should be to establish them at a level which will return cost and yield a reasonable profit on the capital invested. Prices should also be low

enough to induce a generally expanding customer demand and develop a broader use or consumption of the product. If the maximum volume is to be obtained from low prices in periods of depression, costs should be flexible so that they can float with the demand and be reduced when lower selling prices are required to stimulate greater volume of business. Anything which tends to fix costs at a higher level than the economic system can fully support, serves as a brake on the wheels which might otherwise carry industry toward greater activity.

Agencies which contribute to the maintenance of rigid and unjustified commodity prices and wage rates are monopolistic sometimes in their purpose and always in their effect, and are just as harmful to the public welfare as any other monopoly.

Burden Rates and Business Volume

If selling prices are to be based on cost, we may very well ask, "What is Cost?" The actual cost of raw material and the direct labor required to convert it into a finished product are easy to ascertain. We may have a little more difficulty with indirect expenses and the amount which should be applied against the product as manufacturing cost. Elements of plant capacity and probable business volume must be seriously considered.

If we based our burden rates on the current level of production, we might very well compute cost figures which, when normal mark-ups were applied thereto, would result in selling prices which would seriously curtail the volume of business. If we used only the minimum burden rates which were developed in maximum peak production periods, we might compute selling prices too low to yield a reasonable profit in years of average business volume.

Accurate Cost Data and Their Use

I do not know of any time in the last few years when accurate cost data were more necessary than they are today. Customers' requirements are less than they have been, business is harder to get and prices under those conditions tend to weaken.

Managements who know their costs can do business most intelligently in the difficult periods, and cost accountants whose particular function is the preparation of cost information can become valuable assistants to management by their intelligent analysis and interpretation of the data they compile.

Factory managers should know the details of manufacturing costs.

Information regarding these costs should be compiled and presented to them in a form which they can understand. They should be given detailed records of the cost of every item for whose manufacture they are responsible and every assistance should be given them in the interpretation of the information compiled. Manufacturing operations can only be carried on most intelligently when capable factory management is furnished full information regarding its results.

Statements of departmental expenses prepared in comparative form should be given to those who are responsible for them, so that analysis of performance may be made and compared with the results of other periods. For the benefit of factory supervision, these expenses can also be related to units of production, stated as a percentage of direct labor or allocated on any other basis which will enable the factory organization to understand the results of their past operations and from them work out improvement for the future.

Factory costs are controlled largely by shop foremen who have direct supervision of factory workers, and they should be given sufficient information concerning the results of *their* operations so that they can use it to improve their own performance.

Distribution Costs

While manufacturing cost is a major part of the selling price of most factory products, another substantial part is the cost of distribution. Some industries have made progress in reducing the cost of getting their products from factory to the ultimate consumers, but most industries, I believe, have made less improvement in this direction than they have in improving their manufacturing methods.

It is just as important to reduce the cost of getting the product to the consuming public as it is to obtain lower costs of producing that product. Industry has a social responsibility to develop better methods of production and distribution, to reduce prices to the consumer and thus make it possible for more people to buy the products of industry so that more production will be required and greater employment created. Increased employment, of course, results in increased business activity. Hundreds of millions of dollars are spent annually for research to develop new products, and substantial amounts might properly be spent to improve the methods of distribution.

Laws and regulations affecting marketing practices have been made and so long as they foster competition and fair dealing they are beneficial to the public. When they promote price regulation and monopoly, they injure the consumer, reduce business activity and the stand-

ard of living, and tend to destroy the free functioning of democratic enterprise.

Profit Margins

In the interests of low selling prices and a broad market, profits per unit of product should be low, and industry should look for adequate return on its invested capital to high volume of business activity. This has been sound practice for many years but it needs repeating, because periodically, it seems, many people either forget or doubt its fundamental soundness or are tempted to take all the traffic will bear in order to accumulate their profits faster.

It is true that greater profits can be made from higher prices for a short period, but eventually either competition will catch up with high-priced industries or the prices will curtail the sales volume to the point where it becomes inadequate to return any profit at all. While we are thinking about cost control, let us give some consideration to the control of the amount of profit we include in unit selling prices.

Our ideas concerning the ratio of profit to invested capital should also be modest, and no longer should we expect to make high percentages of profit on capital invested in industry. There is an abundance of capital, and the law of supply and demand applies as much to that commodity as to any other. When it is plentiful the price of its use is low and the price becomes higher only as demands become greater or the supply less. Twenty years ago investors expected industrial corporations to earn an average of 20 per cent on the market value of their capital stock, but today such average earnings are no longer generally expected. The rate of return on invested capital has been getting lower and we should not attempt to price our product to return any more than the current rate for our industry.

Interest of the General Public Involved

Profits, prices, wages and costs, in addition to being of importance to each industry, are matters of concern to the general public insofar as they affect industrial and public relations in each community. The welfare of each community is bound up with its industrial life. If industrial employment is high and payrolls large, other business in the community is prosperous. Merchants look to the condition of industry in their community to determine what they may expect in their own businesses. I recently learned of a striking illustration of this condition.

Our company furnishes the largest amount of employment in our

community and somehow rumors were spread that we were going to shut down. Although we publish each month a statement of sales and profits and a balance sheet so that the trend of our business can be readily determined, many of our employees and the local people apparently believed the rumors and quit buying anything more than living essentials until the merchants became panicky in their attitude toward their own businesses.

Although we ordinarily pay no attention to rumors, this one was doing so much damage to the peace of mind of so many people in the community that we publicly denied the rumors and announced that the current volume of sales justified continuation of the current level of employment. This reassurance, we were informed by local merchants, increased their business very materially. The whole episode is evidence of the public need for reliable information concerning industrial operations.

Greater Publicity for Financial Information Desirable

Publication by each industry of financial information concerning its sales, profits and operations is in the public interest, and develops confidence in the minds of employees, stockholders and the general public in the sincerity and integrity of management.

Information of this character can be published only if industry's accounting is sufficiently well developed to make accurate data available at least quarterly and preferably monthly. This requires a high quality of *general* accounting control of financial transactions, but such control is a simple matter of routine after a good job of cost recording has been done. This is one of many factors which are emphasizing the importance of the accountant in the business world today.

Accountants want facts, and if they will apply sound reasoning to them, they can contribute materially to the quality of business leadership. Many large industries have recognized accountants' qualifications for management, and we find accountants at the head of a number of national organizations. This should be encouraging to all in the field of industrial accounting, and I know of no one who has contributed more in that field than the cost accountant.

CHAIRMAN MOORE: We appreciate very much, Mr. Brown, your very fine contribution to our program. We are going to withhold discussion of Mr. Brown's paper until after the completion of the next paper.

Mr. Brown has very clearly pointed out to us the broad economic significance of cost control. He has demonstrated that cost control is not only a basic problem of industry but a national problem as well.

As a second step in developing our theme, "Control of Industrial Costs," we look at the role played by the accountant in this vital effort. The speaker who will handle the topic, "The Accountant's Relation to Cost Control," is very eminently qualified to discuss this subject since he is a graduate from the accounting ranks. It is a pleasure to present the General Manager of the Chicago Plant of Armour & Company, Mr. Warren H. Sapp.

THE ACCOUNTANT'S RELATION TO COST CONTROL

WARREN H. SAPP

General Manager, Chicago Plant, Armour & Company,
Chicago, Ill.

WHEN I arise to address a meeting of cost accountants, I feel that it is an informal occasion—a discussion among friends whom I have known and worked with for many years. That association always makes my task a pleasant one. There seems to be an understanding which carries across the platform so that I actually feel that I am part of the group and not a separate figure behind the speaker's rostrum.

Of course, it has been some years since I was actively engaged in accounting work. The heads of our company probably thought I would never amount to much as an accountant, so they made me a manager. But I am like the young fellow in the song *You Can't Stop Me from Dreaming*, and I like to believe that I am still an accountant at heart and am entitled to be recognized as such.

Scientific Progress Brings Lasting Benefit

The feeling is difficult to explain, difficult to analyze. Part of it is personal, surely, and part of it is an intense interest in the subject under discussion. Yet I cannot help feel that there is still another element which makes these meetings so satisfying to the speaker. Our conferences differ from some others in that the work we do is not a thing of the hour, the day or the week. The discussions and conclusions we reach in our particular field of business management are of lasting benefit. Meetings of minds trained in the sciences add to the sum total of scientific knowledge. They may lead to immedi-

ate benefits to humanity, but they also form part of the foundation on which future generations of scientists will work. It is similar with the advancement and development of cost accounting procedure. We are learning how to enable business to do a better job. Our work is going to remain valuable regardless of booms and depressions, radical or conservative politics, armies and navies, or any other of the forces and conditions of civilization which affect our lives.

That is as it should be, for the real solution to business problems lies in improvement of business methods and not in any political legerdemain or acts of God. Those who pine for the business conditions of the good old days and look forward to the time when business again will be able to operate without interference or restriction are hoping in vain. We may have, probably will have, a conservative turn in politics within the next few years, but when it comes there will not be any drastic alteration of the innovations in business procedure which liberal economists have established in the last few years. And until the conservative turn comes, we may expect more of the same thing we have been getting in the way of business regulation since 1932. The men who are in power politically believe in what they do and they will go right on doing it. Furthermore, I think that history will repeat itself and that everyone will come to believe in, or at least accept, much of the present economic reform program.

And so I say that the purely constructive and intellectual progress which this group and others in the business world can accomplish should be valued more highly than temporary political triumphs. Regardless of what comes, people must be fed, clothed, housed and entertained, and any means which can be discovered to do that job better will be of benefit long after many of the business problems which seem important now have been forgotten.

I believe that we, as business men, feel that we are the basic wheel in our machine of civilization. Professional men, military men, statesmen and educators may deny our claims to leadership, but we have a pretty good case in our favor and if we, as business men, do not present our case, no one else will do it for us. As I see it, our supremacy lies in this: We are the people who actually go out and get the money, the wealth, to run this civilization of ours. Iron ore and coal in the ground are worthless until a business man comes along to convert them into steel. Most of the products of our farms are worthless until they are changed in form by a business man, and all of the products of our farms and factories must be sold and distributed by business men before the flow of money starts which eventually will find

its way to the professional man and to the government to pay the bills which insure the peace and safety of the nation.

Business Must Consider Government Trends and Policies

I am not retracting from my assertion that the intellectual progress, the improvement in method, is the most important aspect of business; however, government is always with us and we must give it consideration. The part which business laws and taxes play in our operations may be secondary to the main problem of buying, manufacturing and selling at a profit, but it still is mighty important. There is a never-ending argument as to who pays the taxes, but we all know that industry—the business man—must dig up the money that goes for taxes regardless of who actually makes the payment.

I am not one who damns politicians as a group and believes that we, as business men, could do a better job of running our government than the men who have that responsibility. Politics is a profession which must be learned by study and experience just as we learn cost accounting. There are able politicians and there are some that are less able—some that are incompetent. There are honest men in politics and there are some who are dishonest. Many men choose a political career deliberately for the same reason that we choose a business career, that is, the hope of making a living and a little more.

It has seemed lately, however, that the opportunities in politics are growing out of all proportion. The amount of money which business has been required to raise for taxes has mounted constantly. In return for these sums, we get more and more government—more services from the federal, state, and county and municipal agencies than we ever had in the past. I am not complaining about the situation particularly, but I do believe it is something which the men who pay the bills should look into.

The Business Man as a Leader in Moulding Public Opinion

As I said before, I do not believe that business men should run the government any more than I believe that statesmen should run businesses. Yet the people create the government and the people should decide carefully how much governmental service they want and are willing to pay for. We ought to be leaders in directing the thoughts of the people in this field because our training has taught us the value of money, has taught us that money is much easier to spend than it is to acquire.

Every young business man should consider it a part of his daily life to familiarize himself with public questions and to develop independent thinking about government. If he can influence a few dozen of his colleagues or his friends outside his business, and there can be enough business men who think these subjects through to a fair conclusion, they will unquestionably guide public opinion along the right channels.

The swings of public opinion are a very interesting study. In a sense public opinion is a constantly moving, ever-changing force. But in another sense, public opinion crystallizes at certain points and stands as firm as the Rock of Gibraltar. To illustrate, let us consider the prevailing public opinion that an employer owes a definite obligation to the people who work for him. Public opinion believes that employees must be taken care of, given a decent livelihood and a reasonable standard of living, before the business can think of profits. Public opinion believes that a faithful employee should not be discharged merely because someone else wants the job or will do the work cheaper. Public opinion has crystallized in favor of government action to relieve the distress of unemployment and old age. I do not think that we could budge public opinion in these respects even if we wanted to.

Yet the issues of unemployment insurance, old age pensions and labor laws in general are far from settled. Public opinion as to how our social objectives should be attained and to what extent the government should participate will always be changeable. Political organizations rise or fall according to whether they interpret public opinion properly on these and hundreds of other questions. We have all seen political groups come and go and, in a democracy, it will be a never-ending procession which business men can help to guide by straight thinking.

I want to leave these thoughts with you as we start discussion of the topic of the day. There are some costs of doing business which business accepts as inevitable. Individually, we can do nothing about them. Collectively, we ought to be able to influence every cost which we have to face.

Cost Control and Management Effectiveness

I am sure the main objective of every business executive is to contribute his proportionate share toward putting the business with which he is associated on a more profitable basis. This goal will be more easily attained if there is the proper co-ordination of the various

factors in management. One of the chief factors in good management is a knowledge and use of costs.

Instead of approaching cost as being a specific thing like labor, fuel, etc., let us consider it as the sum-total result from the operation of the business, that amount which must be deducted from the difference between what was paid for raw materials and the net collections from the accounts receivable ledger, plus other sources of income. While the common interpretation of cost is in relation to specific things, we should realize that the costs of the business have been increased when the purchasing department pays more than the going market for raw materials, when the sales manager spends more than is necessary for entertainment, when the personnel department errs too frequently in the training of students, when the superintendent fails to operate at expected proficiency or handles a labor problem badly, when a sale is made under the prevailing market or when the treasurer's department allows current funds to remain in outlying banks a few days longer than is good practice. Costs, in other words, may be kept in line or they may become excessive in direct proportion to the effectiveness of management on the part of each and every executive having to do with purchasing, operating, selling and accounting.

Problem Differs with Size of Business

In some types of business where one or two executives control all these factors, business management does not present quite the problem it does within larger concerns where, instead of the executive being able to issue orders personally to the entire staff, instructions must be transmitted to the field through correspondence from which a great number of people must interpret the company's policies. In most businesses, therefore, the major executives become specialists in their respective lines. The sales manager is quite definitely a salesman and usually possesses very little, if any, knowledge of factory operations. In turn, the executive in charge of the factory need not possess knowledge of distribution and sales, and these executives, including the general manager, need to know very little about the routine of accounting or the details of the treasurer's department. In all types of business, however, there is the ever-present need for intelligent and accurate cost accounting work, and there probably is a greater need in the medium-sized and larger types of business where the major executives must necessarily use a remote control system in transmitting their policies to the organization.

I am inclined to the belief, however, that in both types of business costs are too frequently ignored. Or let us put it another way—there exists a lack of appreciation of the value and necessity for accurate commodity costs, with the result that one resorts to too much guessing as to what it costs to produce this or that article. We have the right to do a lot of guessing and lose our own money, but have we the right to lose the money of our stockholders without bending every effort to avoid it?

There are two classes of investors. The first type supplies what one might term enterprise capital and is willing to allow the business to retain the capital which is put into the institution on a long-term basis, expecting to be paid back the original amount many times over and finally the original investment. This investor helps to build the factory, supply the equipment, and quite naturally is interested in the progress of the business over a long term of years. The other type of investor makes short-term loans, supplies the additional working capital for peak periods and expects a quick return of his original contribution plus a fair rate of interest. His chief concern, therefore, is almost wholly with the capacity of the business to earn profits currently and to return his capital within short periods.

Present-Day Dependence on Accounting Reports

The principal cause for business failures, I venture to say, is lack of capital. If originally a business was adequately capitalized and at some future date becomes insolvent because of the depletion of its capital, this situation must certainly be charged to poor management, which in turn must result from a combination of circumstances, or any one of a number of conditions, such as: poorly planned production schedules, poorly planned sales programs, poorly supervised credit control, personal habits of the officers, or currently (and this is probably the most common) selling its products at less than actual cost.

There is a wide ownership of business today, probably the greatest of all time. The public, and particularly the investors in our businesses, are mainly dependent upon balance sheets, earning reports and other statements issued by the officers of the business and certified to by public accounting firms as being representative of the financial status and earning capacity of our business.

Accounting records should be maintained in such form as to disclose all important features of business management and, through the balance sheet, inform shareholders, economists, Wall Street, La Salle Street, etc., as to the solvency of the business, the manner in which

the business has invested its enterprise capital, its various financial ratios, etc.; also, a detailed profit and loss statement should indicate the disposition of the current year's earnings or deficit, and any adjustments made through the surplus account. The accounting profession, both industrial and public, bears a grave responsibility not only to the officers of the company in the proper classification of assets and liabilities and in disclosing accurate costs so they may be properly guided in their buying, processing and merchandising policies, but also in the presentation of the pertinent details regarding all financial and operating data for the benefit of the public and the shareholders. The corporate division of the accounting department functions in this respect, and upon this I shall make no further attempt at detail for the reason that my purpose today is to discuss management in its relationship to the earning capacity of the business, which leads me directly into my subject, "The Accountant's Relation to Cost Control."

I do not propose to discuss cost accounting procedure with the business managers and cost accountants here today, but rather the role the cost accountant should play in this problem of business management.

I should like to make this point at the very outset: There is a dire need for more cost accountants who are managerial-minded and also for more managers who are cost-minded.

What Is Good Management?

What constitutes good management? I should say one of the main contributing factors is effectiveness in whatever is being attempted. Effectiveness calls for proper research into sources of raw materials, research into the potentiality of the distribution field to be covered, efficient planning of the production program, the establishing of fair and attainable sales budgets and the maintenance of operating standards in the matter of yields, labor, unit costs, fuel consumption, etc. Good management depends upon men and I think we can agree that the greatest problem in business is the personnel problem, that of finding the right persons to direct policies in these various phases of control and management.

In the factory we hear a great deal about waste labor. I want to ask you this question: How much needless argument goes on in your sales and operating meetings just to gain your point? What would happen if an industrial engineer were brought in to time study and figure the waste time of those of us who sit in on these meetings? Check it some time.

Competition may prevent some particular business from selling its commodities at a margin over costs, but it compels most firms to buy and sell on about the same basis. The thinking, co-ordinated and properly controlled organization will be able to produce at lower costs and consequently enjoy greater profits. Competition may control prices of raw materials and it may be the biggest factor in establishing selling prices, but it has little to do with operating costs and managerial control. Cutthroat competition is usually based upon inaccurate costs and this condition, because of lack of information pertaining to trends and business cycles, tends to defeat the purpose of business and results in inferior service to the public. With thorough knowledge of your costs, you will not slash prices in the belief that you are still making profits. The most outstanding commercial sin is to create a cutthroat competitive situation because of lack of knowledge regarding either the prevailing market and/or your commodity costs.

The Cost Accountant's Function

The three chief values of cost figures are:

- (1) to establish a basis for selling prices
- (2) to judge operating efficiency
- (3) to serve as a basis for determining what the company can afford to pay for raw materials.

A few moments ago I made the statement that most business executives are specialists, spending most of their business careers in becoming efficient as sales, factory, purchasing, personnel and accounting executives. As a result, there develops the need for a co-ordinating service within the organization to supply all pertinent data on the features of the business which pertain to profit and loss on individual commodities and upon which these men do not possess expert and composite knowledge. This co-ordinator has become known as the cost accountant. To me he is more than that—he is the stabilizing factor and the one executive upon whom the general manager and his staff must depend for data upon which they base their day-to-day bids and quotations. This stabilizer is an over-all specialist and to function effectively must possess a rather complete, intimate and detailed knowledge of the operation of all the divisions of the business. He should, by all means, have had sufficient training in the accounting department to acquaint himself with the details of the classification of accounts so that he may properly relate the expenses of running the

business to operating practices. He should have spent sufficient time in the factory to become familiar with operating practices so that he may know from actual experience what to expect in the matter of labor costs, yields, shrinkage, etc., and to be able to intelligently apply indirect expenses to commodity costs.

Costs Where Selling Price Is Fixed

There are two main types of service to be rendered by the cost accounting department. In a business where the selling price is more or less fixed (commodities such as toothpaste, soap, gum, etc.), the most important phase of management is to properly control costs. The cost department's principal duty here, as I see it, is to establish standards by progressive steps of production in order to insure that the various products are produced at costs permitted by the fixed standard prices.

While I know nothing at all about the gum business, let us presume that the wholesale price established by the manufacturer is 3 cents per package. Of this 3 cents a certain percentage should be set aside as a standard cost of raw materials, flavoring mediums, etc., a portion as a standard cost for labor and maintenance, a portion for selling expenses and advertising, another for packing and shipping, and finally a portion for profits—all coming within the limitation set by the 3-cent wholesale billing price.

Either weekly, monthly or quarterly, as a business may require, analyses should be prepared showing the results of actual performance in the various stages of production as against the standards, so that, if any department of the business should get out of line, the matter would be brought immediately to the attention of the proper executive and corrective measures applied.

Costs Where Selling Prices Fluctuate

In businesses where selling prices fluctuate as a result of frequently changing raw material markets, or any other factor, in addition to instituting cost controls, it becomes necessary for the cost department to present current estimated standard commodity costs from day to day, week to week, or month to month, as the market changes warrant. Naturally, in forecasting these commodity costs, certain estimates are necessary and in instances where, because of a fluctuating raw material market, formula changes are also thought advisable, the cost accountant's problem becomes all the more intricate and hazardous.

Sales managers in businesses of this character are more dependent upon the cost accountant for advice than in a more stable business because they find it necessary to change their selling prices in order to keep pace with changing conditions, lowering them when costs decline in order to stay competitive, and using them as a guide in following an increasing market. It is in this type of business, particularly, that comparisons should be made at the close of accounting periods, between actual results and those anticipated by the sales manager and the general manager through their use of the estimated commodity costs in establishing their selling prices.

Importance of Correct Indirect Cost Application

I should like to emphasize at this point what I consider to be one of management's most important problems, one which, incidentally, falls to the lot of the cost accountant: the translation of the total indirect and fixed expenses of the corporation into commodity costs. It is a rather easy job to determine the direct costs of commodities, such as raw material and labor costs, but it is a very intricate task to take the indirect costs such as depreciation, taxes, insurance, motive power, salaries, etc., and apportion them accurately to commodity costs. *There is too little appreciation of this type of work on the part of general managers and too frequently it is looked upon as a routine bookkeeping matter.*

This stabilizer, the cost accountant, should be, let us say, 25 per cent managerial-minded, 25 per cent factory-minded, 15 per cent research-minded, 15 per cent sales-minded and 20 per cent accountant. By all means, he should be flexible in his thinking and practices. Many executives, due to their lack of intimate or detailed knowledge as to how the cost accountant arrives at the figures, accept them readily and, in doing so, do not realize they are recognizing him as their current estimator of the profit and loss to be realized on the various commodities. All of this imposes a great responsibility upon the cost accountant. His service can be a very valuable one to the business or it can be a disastrous one.

Accurately determined costs serve to guide the various executives in their buying, processing and selling policies. If the costs are underestimated, sales will not be as profitable as the general manager and sales manager think they are and there arises the immediate danger of unprofitable operation. If, on the other hand, the cost accountant includes excessive expenses in his calculations and quotes commodity costs higher than the actual cost of production, then he is apt

to retard business by causing the various executives to believe that they cannot meet existing competition.

Qualifications and Responsibilities of the Cost Accountant

Mr. Brown had something to say about the rate of current production and burden rates. What I am emphasizing here is that the cost accountant should guard against taking the figures from the general accounting department or the books and translating them directly into commodity costs. There is a danger of including some fixed expense which should be charged against surplus and never be charged against current operations. This might result in costs which are too high and cause the sales manager, who is a specialist and ordinarily does not understand cost accounting, to think he cannot be competitive.

The cost accountant bases his calculations upon prices paid for raw materials by the purchasing agent, the efficiency of the superintendent's management of the factory, the volume predicted by the sales manager and his own application of these indirect and stationary expenses.

So I say to you, he should be a progressive, aggressive individual, and a man who has the courage of his own convictions. He is the one man within the organization who prognosticates profit or loss on each commodity. This in turn places the sales manager in a position to know which articles are the most profitable and enables him to know how he should proceed in his problem of distribution and selling.

I often wonder if, in organizations where the cost accountant and his work is less appreciated than some of the other major executives, the cost accountant has not himself to blame because of having been too dogmatic in his principles and application of indirect and fixed expenses. Perhaps he has not been sufficiently flexible in his thinking and has not, for this reason, sold himself to the general manager, the general sales manager and the general factory superintendent as being a practical business man. I often wonder, also, if cost men realize the importance of their work, the imperativeness of the proper apportionment of indirect expenses to commodity costs. I wonder if they realize that if this work is not done effectively, they are likely to be the cause of sales having been made at a loss or volume restricted because of the effect of overstated costs. Permit me, therefore, to emphasize a previous statement, that this business stabilizer should be 25 per cent managerial-minded, 25 per cent factory-minded, 15 per cent research-minded, 15 per cent sales-minded and 20 per cent accountant. These remarks are not intended to be particularly

critical of any department of a business but are made to stress the importance of the cost accountant's being aggressive and accepting his position with the responsibility which may lead to mistakes occasionally, but on the other hand, may permit him to bask in the sun-light of success due to efficient and profitable management.

If a business is forced out of existence because of lack of profits and this is due to selling at less than cost, the cost accountant must bear an equal, if not major, portion of the blame along with the other executives of the business who directed its managing and selling policies. Industry should recognize cost accounting as one of the major divisions of business management and control, and should provide the cost accountant with prestige equal to that of factory management, sales management and office management.

If he is to occupy this position and sit at the elbow of management, certainly he must be progressive and not a visionary and research-minded historian. Through his commodity cost statistics he should keep management accurately informed on the probable profit or loss of each article, and then at the close of the accounting period reconcile these estimated results with the actual performance of the business. Thus he can be in the real sense the stabilizer of the ship of state.

Conclusion

If we are to bring about better management through greater co-ordination and co-operation between the various divisions of the business, it is essentially important, in my opinion, that the chief executive assign a permanent place at the conference table to the cost accounting executive and that he personally give full recognition to the importance of the work of the cost executive and his staff, which will have the effect of providing the service of this department with prestige equal to that of the other divisions of the business.

In the same way, the cost executive must measure up to the managerial responsibilities of his position, take issues with other executives when they show an inclination not to face the music of true facts concerning costs, diplomatically bring to the surface and to the attention of the general manager or president of the company adverse conditions, so that they may be brought up for discussion before it is too late and, conversely, set forth advantageous and profitable situations so that quick action may be taken to the benefit of the business.

This is a mutual proposition with the greatest responsibility resting upon the cost executive and the policies he pursues. To be 100

per cent effective, he must have the full confidence and support of the chief executive.

CHAIRMAN MOORE: Mr. Sapp, there is no need of my telling you that this group appreciates your very fine contribution. The sincere applause attests to this.

Gentlemen, we have had plenty of material to digest here this morning and I know that there must be questions in your minds, so let's have them.

To start the ball rolling, I should like to get one thought off my chest. Mr. Brown in his discussion emphasized the importance of development and research costs as a cost control factor. I wonder if it wouldn't be interesting to have Mr. Brown give us just a few more ideas on that topic. Do you mind, Mr. Brown?

MR. BROWN: The speed with which new products are brought out emphasizes the degree of research management and energy back of an enterprise. I mentioned that new product industries are often able to pay better wages, to get bigger margins of profit. New products usually are more efficient than older products. They contribute to cost reductions for other people, if they happen to be production items such as the machinery which my own company manufactures. Their use is more profitable than older machines, and customers will pay more for their greater productivity. We aim at all times to produce better machinery that will do our customers' work better, quicker and cheaper. In doing that, we are benefiting that customer and at the same time are earning better profits for our stockholders.

Insofar as the products are better than others that are on the market at that time, better prices can be obtained and better wages can be paid out of those prices.

I indicated in my talk that newer industries can usually pay good wages, and if you can do that you have a much easier time with industrial relations, which is also an important factor of cost control.

I also mentioned research in distribution. It is always a problem of cost control to find out how to get the product to the market in the easiest way at the least expense. The lower the cost, the greater the chance of getting the price down to where the maximum volume can be obtained and profit increased.

F. A. BOETTGER (*Factory Accountant, Inland Division, General Motors Corp., Dayton, Ohio*): Mr. Brown, in your discussion

of personnel relations, you stated that you distribute certain information regarding your sales, profits and other matters to your employees and to the community. I wondered if you had any reaction, when you first began publishing that information, such as a misconception of your profit figure, or the feeling that you were earning excess profits, thus causing more unrest than you might have had if you hadn't given the public the information. I would also like to know whether you took any steps to educate the people to a thorough understanding of the information you were giving them.

MR. BROWN: The gentleman wishes to know whether we have had any adverse reactions to our policy of publishing monthly our sales, profits and balance sheets.

We have not had any adverse reaction. There was a time, particularly in the spring of last year, when labor organizers used our profit ratios as an argument for creating a disturbance among our workers. It didn't get very far, however, because along with those satisfactory profit ratios we had attempted to develop confidence in the minds of our workers as to our own integrity. Our policy has always been to attempt to treat them fairly, to pay them high wages, as high as any paid in the industry and in our community. So long as they are getting wages on that basis, it seems to me they have no reason to complain a great deal.

One of the benefits of our policy, we find, is that monthly releases enable everyone in our community as well as the general public to know the trend in our business and the trend in probable employment. When that trend appears to be downward, those dependent on our employment are thus warned to be a little more frugal than they might otherwise be when the trend is rising. We have found that the publication of this information is generally very desirable.

CHAIRMAN MOORE: Now, how about giving our fellow cost accountant, Mr. Sapp, a workout.

R. C. DETWILER (*Controller, United Engineering & Foundry Co., Pittsburgh, Pa.*): Mr. Sapp stated that in translating total indirect and fixed expenses into commodity costs it was a matter of major importance to determine if some of the expense should have been charged direct to surplus. I should like to have him indicate some of the items which, in his opinion, should be charged direct to surplus.

MR. SAPP: The question concerns the statement made with reference to the cost department's accepting the general ledger trial balance of expenses and spreading them *in toto* against the current production costs. I stated that there might be included some charges that should more properly be made against the idle property account or the surplus account than against current operations.

This situation might arise where one or more buildings have been completely abandoned, either through the lack of volume or because of changes in processing, which resulted in the consolidation of operations for the purpose of saving labor. Suppose a competitor had recently erected a factory and had put up just what was needed to produce the same commodities. If the cost accountant took your figures without analyzing them and without setting aside the overhead on the abandoned space, he would be very likely to quote unreasonably high commodity costs. With the sales manager selling on the open market against a competitor who was operating in a newly constructed factory and determining costs on an actual basis, business might be retarded in the belief that your company could not meet the existing competition.

I have listened to many arguments about the costs of carrying idle property and I do not believe that any business these days, with the restricted volume we are now experiencing, can afford to include in commodity costs any burden that does not actually pertain to production. If such burden is included and you let the figures fall where they may, you may wake up too late and find that business has been restricted to the point where supreme sacrifices may have to be made to regain your position in the merchandising field.

EDWARD P. GILLANE (*Works Accountant, Underwood Elliott Fisher Co., Bridgeport, Conn.*): I should like to ask Mr. Sapp to elaborate on the cost accountant's relation to research work. You stated, Mr. Sapp, that the cost accountant should be 15 per cent research-minded. Is it your thought that the cost accountant should question the right of the research engineer to spend a certain amount of money for research for a certain product if the cost accountant feels that the possible savings resulting from the research work will not make much profit for the company?

MR. SAPP: I think the cost accountant should establish himself on the basis that he is privileged to roam through the business, with the prerogative at any time of questioning any expenditures made by

a department after relating the cost to the benefits he can see. He will not always be correct, but he should bring such situation to the surface. The industrial engineer, or the research expert, should fully recognize the status of the cost executive. Naturally, the final decision in such a case should come from the general manager.

I am glad you brought up this percentage table of mine. In presenting it, I recognized that any man assigned to the job of cost accountant would naturally have an accounting background. What I intended to imply was that he does not need, and should not attempt, to apply over 20 per cent of his mentality from an accounting standpoint. Probably only about 20 per cent of the cost man's work is accounting. The real work the cost accountant should be attempting to accomplish is the co-ordinating of various features for these specialists in business. He needs to use only about 20 per cent of his knowledge of how to determine costs, mainly for explanatory purposes. In addition, he must study research problems, distribution problems, the opportunities in the factory to short-cut an operation, to lower costs, to package a half-dozen articles in one package instead of individual packages, etc. If he does not analyze, along with the general manager, the cause and effect of all these things, then I do not think the cost accountant is fitting into the role he should occupy in business.

He is, in short, the over-all specialist, and necessarily so, and that isn't being critical of any other executive connected with the business. A sales manager spends all of his time learning how to be an efficient salesman; the factory superintendent establishes labor costs, plans and carries out production schedules, and along with many other operating duties does not have much time or opportunity to become cost-minded. So the cost executive is the true stabilizer, and his chief responsibility is to bring all inconsistencies, good or bad, to the attention of the men who devote all their time to specialized performances. He should not assume the role of questioning the expenditure appropriated, for example, for the use of the research department. But, with his general knowledge of the operation of the business, he should be able to exercise proper judgment as to the proportion of such experimental costs chargeable to the general profit and loss account and the proper proportion to assess against current operating costs.

H. S. NORDIN (*Manager, Cost Department, Brown & Bigelow, St. Paul, Minn.*) : When reducing selling prices in the hope of increasing our volume sufficiently to realize a profit, is it advisable to reduce overhead rates in order to show a profit on the cost sheets, or

should the rates be left untouched so that the profit, if any, will show up in the overabsorbed burden account?

MR. SAPP: The question is, in adjusting overhead rates in a plan to increase sales and thereby increase profits, whether there should be any changes made in the overhead rates on the cost sheets, or whether one should let them stand and show the profit as a pick-up in burden.

I think a great deal depends upon how you calculate costs. In determining the costs of a commodity or a line of commodities produced by one machine or operation, you can establish your overhead rates on that commodity or line on the basis of anticipated volume. If your sales meet the anticipated volume, then your picture is complete. If sales are less than anticipated, you should point out the extent to which the profit and loss account has been affected due to volume falling below what was anticipated, resulting in an under-absorption of burden. If sales exceed the anticipated volume you will have a profit in the overhead account due to having sold more than was anticipated. However, there is this point that must not be overlooked: These gains or losses in the overhead account will only be realized in the profit and loss account if sales are consummated without having discounted the list prices.

I should think that the whole question centers around the policy which your general manager or president wishes to assume regarding the business and his control over the sales manager. There are a lot of volume sales managers who, under pressure, will go out and turn in a lot of volume, but they may keep shading the list here and there, with the result that the profits at the end of the month will not be what they should be. It is very difficult to analyze and put your finger on a loss of this sort because in the overhead account, if they get the volume anticipated, everything looks all right. You have to make a sales analysis and actually show that prices were reduced, if such was the case.

This is a rather intricate subject and I can only tell you what my practice would be. I would establish the volume and determine the overhead rates against individual commodities on the following basis. If there is a campaign on to increase sales, I would not, as the general manager, approach the problem from a cost standpoint. I would bring the sales manager and the cost accountant into conference. The cost accountant would be a silent partner and would not be expected to do much talking. I would commit the sales manager to a program and would discuss the matter on the basis of the prevailing market

and the competitive situation. Should he agree that he could increase sales at prevailing prices, then I would not change anything; I would carry on with the same burden or overhead and expect to see a substantial pick-up in the overhead account.

If he should say that the competitive situation was bad and that he would be forced to reduce prices in order to increase volume, then we would look at costs. We would undoubtedly say to the sales manager, "All right, we will reduce costs to the necessary level and have the cost accountant reduce the overhead rates, but only to the extent that they would be lowered as a result of the increased volume anticipated." Then it would be essentially important to watch very carefully to see that we realized the anticipated volume so the overhead account would not carry a loss.

I think, therefore, the decision should be governed entirely by how you go about building up your campaign to increase sales.

OSCAR J. HELD (*Accountant, Lunkenheimer Co., Cincinnati, Ohio*): Mr. Sapp, in your remarks, you indicated that you would not be satisfied with statements reflecting profit or loss by lines of product, but would insist on a breakdown by items of commodities within the line. Would this not be a rather expensive procedure in some industries? I have in mind that the management, in certain industries, would be primarily interested in profits or losses by lines of product; furthermore, it would resort to a breakdown only in cases where the line is produced at a loss.

MR. SAPP: Where you have a line including, say, ten commodities, my idea would be to determine the overhead on the line by finding out how much per hour it would cost to produce the line, and then estimate the speed at which each of the commodities could be produced. You might run one through at the rate of 1,000 an hour, another at 8,000, another at 6,000, etc. Depending upon the market for the product, I should think you would next have to establish a normal, in a case where you do not care to change the sales price at frequent intervals, based, let us say, on a 40-hour work week, 80 per cent of capacity, or 1,664 hours annually; determine the cost on that ratio of capacity and then face the problem of whether the production program will operate in line with the 1,664 hours for the year. If not, it probably would not be advisable to burden the product with additional overhead for the reason that the task before you would be to promote sales to the point of getting the line up to close to 1,664

hours' operation. If the volume does not provide for this, then the sales manager should be charged with the building up of the volume to the necessary point to avoid idleness of the line. Finally, if the product cannot be built up to a satisfactory point, you should edge up your selling prices a little from time to time, if competition will allow it without curtailing the present volume, in order to overcome the deficit in the overhead account.

As for the market, I often ask the question: "What makes the market?" I wonder how many of you would give me the answer. Two people? All right. In every market there is a ceiling and there is a floor. If you think the sales organization out in the field, bucking up against all the arguments of merchants who use psychology and everything else in an endeavor to buy your product on the floor of the market, is not going to telephone the sales manager that they have hit the ceiling of the market, you are mistaken. This is one of the many reasons why the general manager should continually pound the back of the sales manager in trying to make him accomplish more than his selling staff tell him is possible.

E. C. DAY (*Assistant to the Vice President, Brown & Bigelow, St. Paul, Minn.*) : In connection with the problem of developing an understanding of the business on the part of employees and the public, I should like to ask Mr. Brown what he considers the most advisable way of distributing financial information.

MR. BROWN: I do not know what method is the most advisable or the best. Our own practice is to release to the newspapers and the New York and San Francisco Stock Exchanges each month a balance sheet and a profit and loss statement, showing sales, costs and expenses, profit before deducting depreciation and federal taxes, depreciation, federal taxes, and net profit available for dividends. A copy of the release which we give to the stock exchanges is also given to leading newspapers in New York, Chicago and San Francisco and to the Dow-Jones ticker service. From that, other newspapers interested in our release can pick it up and publish it in their papers. We make no actual distribution of the statement to the employees each month. We rely on the local newspapers carrying the information to them.

However, in summarizing the operations for the year, we established the practice in 1937 of issuing our stockholders' report jointly to the stockholders and to the employees. We endeavored to so ar-

range it that every employee, no matter how little he knew about figures and statements, could at least get some idea of what we had been doing, what we accomplished, and what it all meant to him, and our object was to enable him to understand the business and our financial condition a little more clearly than he might otherwise, if he obtained the information only from rumors.

In issuing our annual report in that manner we tried to show him something of the industry of which he was a part. We filled the report with pictures and presented the balance sheet and operating accounts in their normal accounting form and also in a very simplified form. We termed the simplified statement an explanatory balance sheet, in which we used words and phrases that a layman could understand.

We believe that giving employees the same kind of information that we give to our stockholders is good policy and encourages them to appreciate that in the matter of business information they are getting the same data as the owners of the business.

CHAIRMAN MOORE: There is one item here in Mr. Brown's paper that I am going to ask him to elaborate on. You recall he said: "Agencies which contribute to the maintenance of rigid and unjustified commodity prices and wage rates are monopolistic sometimes in their purpose and always in their effect, and are just as harmful to the public welfare as any other monopoly."

I think from the standpoint of cost control that statement raises a question as to whether or not there is a possibility that wages, being such a sizeable element in costs, may not have assumed a monopolistic tendency, and to that extent recovery may be retarded.

MR. BROWN: Of course, wages and wage rates represent almost all of costs. Whether you buy material or whether you mine iron ore and turn out a finished product, practically all cost is wages. The raw material in the ground is worth very little. Whatever the wage levels are throughout various industries, they eventually determine selling prices.

When I think of monopolistic wage rates I think particularly of the highly organized building trades. I know of no more outstanding example of unduly high wages contributing to low volume than in that industry. Skilled and unskilled building laborers get hourly wage rates out of proportion to their skill compared to other industries. As a result, people in those other industries are unable to buy

the work of the building trades in exchange for the money that they earn in their own businesses. The building trades unions control the building industry and demand that other industries supply a disproportionate number of hours of their work in order to buy the work of the builders. To that extent, it seems to me, wage rates are monopolistic and harmful to the public welfare.

In general, when high costs are fixed and necessitate high selling prices, they tend to stifle trade. Commodity prices in which there is a free market, rise and fall with the supply and demand. Supply and demand are not always applicable to wage rates, however, but to some extent wage rates should fluctuate so that they may be lowered when business declines, in order that the cost and selling prices may be reduced and additional business stimulated. It does not matter at all at what level wages are fixed if the customer will buy a sufficient volume of the product of labor's efforts. Wage rates can be \$100 an hour if enough purchasers of that labor can be found to keep the workers busy. But when customers become scarcer then it seems to me advisable to reduce costs and selling prices to the point where greater business activity can be generated. Anything which tends to make costs rigid is definitely harmful to business, and when business is harmed the public welfare is also harmed.

Wage rates at this particular time in many industries are almost fixed by union domination with sympathetic governmental co-operation. Some basic industries of the country are operating at only a small percentage of their capacities when they might be able to increase their operations very materially if they could reduce their costs and their selling prices.

WILL DOLL (*Auditor and Office Manager, Wardway Paint Works, Chicago Heights, Ill.*): On that question of fixed cost and monopolies, is it not true that industry is assuming or having imposed a larger proportion of fixed costs in the way of taxes, depreciation, investment in expensive machinery and so forth, which tends to make costs less variable?

MR. BROWN: There is no question in my mind but that taxes are a very important factor in your costs. I mentioned that they represented this year approximately 24 per cent of the income of the country. You know as well as I do that reducing taxes is a very difficult problem. Many people in this country have been trying to find ways and means to reduce taxes for a good many years. They

have not succeeded and we should realize that no matter whether the 24 per cent is paid directly or indirectly, it is a burden on the public and is worthy of the serious consideration of everyone.

Taxes are spent by people with probably far less business training than those in the average business organization. They are spending huge sums of money. I think they should have the assistance of all clear-thinking people. Business should take a greater part in helping political officials do a good job of spending their budgets. The various civic organizations can contribute materially by analyzing the manner in which taxes are spent, and offering their constructive criticism of the disposition of public expenditures by public officials. They should also make a strong effort to eliminate all wasteful items from federal, state and local budgets, so that, through wise expenditures of the proper kind and elimination of waste, the tax burden on the public may be reduced.

Regarding expensive machinery as a high fixed cost, that is a question, probably, of operating volume over the long period. If initially machinery is a good investment over the long pull (and by that I mean on a basis of volume to be obtained over average years), then it is only an apparently rigid cost in years of low volume. The reverse is also true; it is a comparatively low cost in the years of high volume. Ordinarily, fine equipment will tend to reduce average costs over the long period and probably is one of the best investments that industry can make. In low-volume years, however, cost accountants have to consider very carefully the amount of depreciation on that machinery that should be applied against the cost of production for those low years. You have a very careful job of management thinking to do there.

I also mentioned plant capacities, and this question of burden rate is one that bothers all of you, I suspect, at some time or other. In my company we are inclined to assess against the cost of the product possibly just a little lower burden rate than we believe correct, hoping through comparatively low selling prices to generate enough volume to carry all of the year's burden that we think we will have. We always try to compute our costs and selling prices on the low side.

C. H. TOWNS (*Partner, Loomis, Suffern & Fernald, New York, N. Y.*): Mr. Sapp has pointed out that the cost accountant should go into the workings of the various departments, questioning the sales manager, the research man and others. I assume from that that he

means that the president or the general manager is not immune to questioning by the cost accountant. I should like to clarify that point.

MR. SAPP: I should like to look at the question from a progressive general manager's standpoint. What I propose to say first—and this isn't going to be my final answer—is that the general manager should have his finger on the affairs of the business to the point that he keeps the cost accountant busy getting into all the things needing attention. The general manager is the final man to judge whether these things are being done rightly or wrongly. He is dependent upon the cost accountant to see through every department of the business. I do not subscribe to the adage, "The king can do no wrong," and there are times when the general manager may make a decision based upon inaccurate information. I presume in the smaller type of business there are general managers who officiate in the role of sales manager, at least to the extent of making a lot of sales. In those cases they should be checked up just the same as anyone else. The general manager should be properly informed at all times and protected from making mistakes of that nature. All general managers need the advice of the cost executive.

In my opinion, the cost accountant's contribution should be advisory and informative. He should not need to be as two-fisted with the general manager as with the sales manager, superintendent and purchasing agent. The general manager, however, needs protection, advice and guidance just the same as the other executives.

CHAIRMAN MOORE: We have moved along the road in our discussion of our convention theme, "Control of Industrial Costs." I know you will agree with me that we have made a very fine start. This afternoon we will continue the development of this theme in a discussion of the underlying principles of cost control and the tools of cost control.

I want again to express my appreciation to Mr. Brown and Mr. Sapp for the very fine contributions they have made. I think it is fitting that we close this meeting by showing our unanimous appreciation.

. . . The meeting adjourned at twelve-fifteen o'clock . . .

SESSION II
ESSENTIALS OF COST CONTROL

TUESDAY AFTERNOON, JUNE 21, 1938

M. A. MOORE, *Chairman*

J. HUGH JACKSON is a native of Iowa and received his advanced training at the Harvard Graduate School of Business Administration. Since 1916, he has taught accounting at the University of Minnesota, Harvard Graduate School of Business Administration and Stanford University. From 1921 to 1930, Dean Jackson was associated with the Boston, New York and San Francisco offices of Price, Waterhouse and Company. Joining the faculty of Stanford University as Professor of Accounting in 1926, he was made Dean of the Graduate School of Business in 1931, and in March 1937, assumed the additional duties of Acting Comptroller. A C. P. A. of California, Massachusetts and Wisconsin, Dean Jackson has served as President of the American Accounting Association and is a member of the California Society of C. P. A.'s and the Council on Foreign Relations. He is at present a Director of the Palo Alto National Bank and of the Dollar Steamship Lines, Inc., Ltd. Dean Jackson has served the Association in several capacities over a period of years, and is its President-elect for the coming year.

WILLIAM E. PERRY is a native Pennsylvanian and has never wandered far from his native state. Educated at Dunmore (Pa.) High School, he entered the employ of the Scranton Lace Company in 1919. He continued his education through the Extension Division of the Wharton School of the University of Pennsylvania and graduated in 1923. With the Scranton Lace Company, he advanced to Assistant Treasurer in 1927, and to Controller in 1930. Five years later he was elected a Director of the Company and now serves as a member of its Executive and Finance Committees. Mr. Perry has served as President of the Scranton Chapter and was a member of the National Board from 1933 to 1936.

ESSENTIALS OF COST CONTROL

CHAIRMAN MOORE: At this morning's session Mr. Brown emphasized the importance of information reports to the public and to employees. You will be interested in knowing that we have in the exhibit room a large display prepared by the National Association of Manufacturers in which are exhibited a number of interesting and outstanding corporation reports issued during the past year, including portions of the Caterpillar Tractor Company's report. These reports are grouped to illustrate the methods used by various concerns in making their annual reports more informative and helpful. That is another indication of the timeliness of our subject this morning. The cost accountants are always out in front.

This morning we started on the road to develop our convention theme, Cost Control of Industry. This afternoon we advance along the road by discussing "The Underlying Principles of Cost Control."

Cost control in American industry is not the result of any haphazard action, as you may think. There have been developed in American industry certain clear-cut, logical principles within which all the functions of cost control operate.

Our first speaker this afternoon is at present National Vice President of the Association and nominee for President for the coming year. He is especially qualified by his academic, professional and executive experience to outline for us "The Underlying Principles of Cost Control." Dean J. Hugh Jackson.

UNDERLYING PRINCIPLES OF COST CONTROL

J. HUGH JACKSON

Dean, Graduate School of Business,
and Acting Comptroller, Stanford University, Palo Alto, Calif.

IN THE discussion of this subject, the underlying principles of cost control, I am really assumed to be dealing with the organization and planning side of cost control. And in the presentation of this material, I shall define cost control as the guidance and regulation of the internal operations of a business, by means of modern methods of costing, through the measuring of manufacturing and sales performance.

Terms Defined

These terms, in turn, are subject to definition. Manufacturing performance, for example, according to our good friend, Dr. Charles Reitell, whose definition we accept for purposes of this paper, refers to "what goes on within the factory, to the results of the activities of the men, machines, tools, and supervision, all of which should be combined and co-ordinated into a harmonious system without overlapping of authority, duplication of effort, or waste, loss, or inefficiency at any point in the productive process."¹

It may be added that these results, from a cost control standpoint, will generally be expressed in money amounts per unit of time (such as the day, week or other appropriate period) or as so much per job, operation or process. Oftentimes it is also very helpful to express such outlays of effort or money in terms of productive man-hours, machine-hours, and so on.

But it is not the purpose of this treatise to deal with routine definitions or to discuss details of cost accounting procedure. This paper, although it may be open to criticism in the minds of some because of its abstractness, will, nevertheless, intentionally be confined to general principles. The necessary techniques to realize those principles, and the application of those techniques to specific problems, will be the goal of the papers to follow during this Convention.

Workability First Essential

The *first* underlying principle of cost control which I wish to enunciate is that the cost system, in combination with the system of planning and production control, must be *workable*; that is, it must be practical. This may appear to be axiomatic, but it is nevertheless fundamental. Regardless of how perfect a system of cost accounting may be in principle, how complete the account classification or ideal the method of burden distribution, how perfect the design of the various records and forms to be used, if it does not fit your specific needs and conditions, it is doomed from the beginning to fail. This includes, moreover, a degree of flexibility, either to contract or expand, consistent with the continuing needs of the business.

Unfortunately these qualities have been lacking in many cost systems, and particularly in the case of the so-called uniform systems of accounting and cost-finding. Such systems have been based upon

¹ Reitell, Charles, and Johnston, C. E., *Cost Accounting, Principles and Methods* (Second Edition), p. 9. International Textbook Co., Scranton, Pa., 1937.

strictly correct principles of accounting, the classifications of accounts were carefully developed and the forms were meticulously drawn; but the systems, in many cases, did not fit the needs and conditions of the individual businesses, and accordingly they failed. Specifically, in the case of one of the leading trade associations of the United States whose uniform system of accounting and cost-finding is generally accepted as one of the best that has been prepared, an attempt was made in the earlier years of the system to fit the businesses to the system rather than to adjust the system to the individual units within the industry; the result was that nearly 90 per cent of the systems installed in a certain geographical area were discarded within five years. The pragmatic test must be applied; the system of cost control must fit specific conditions and must be *workable*.

Importance of Simplicity

A second underlying principle of cost control is that it must be *simple*. Avenues must be provided through which it can function easily and directly. There must be a clear definition of the methods, processes, and results to be controlled. Information must be obtainable promptly, and must be understandable by those who are affected by it, or by those who must use it.

This simplicity should also extend to the so-called paths of authority which pass from the administrators who determine policy, to the executives who are responsible for the performance of that policy, and then to the employees who perform the actual operations. These paths should be definitely known to executive and employee alike, and they should not be short-circuited by careless employees or by impatient executives. As far as may be consistent with accuracy and dependable information, the cost forms to be used, the classifying and distributing of expenses, in fact, the whole cost control mechanism, should be kept as simple as possible. It is only in this way that our cost materials will prove of definite service to the executive, aid in the solution of his problems, catch his complete interest, and win his full confidence.

Moreover, in my judgment, it is only as we accountants are able to express these complicated matters of cost control in simple language and understandable terms, that accounting and accountants can ever hope to reach full stature and maximum maturity. It has been my observation over the years that any young Ph.D. in physics can discuss the laws and workings of that science in highly technical terminology, but it requires the experience and maturity of a Millikan or

an Einstein to present the laws and manifestations of this great science in language understandable to us laymen. Thus it is with those who are technical experts in accounting; instead of lowering our standing in our companies or weakening the position of our science, we reveal our growing maturity by our ability to explain these control devices in terms sufficiently *simple* that executives and workers alike may understand and intelligently use them.

Definite Fixing of Responsibility

A *third* underlying principle of cost control is that there must be a definite fixing of *responsibility* for accomplishment, together with the *authority* to carry out such duties or functions as may be necessary for such accomplishment. Mr. Henry L. Gantt stated a fundamental principle of executive conduct when he said, "The authority to issue an order involves the responsibility of seeing that the order is properly executed."² Mr. Gantt then proceeded to say that an order, to be effective, must have certain qualities or characteristics:

- (a) The proper authority behind it.
- (b) Compliance must be possible and reasonable.
- (c) The description necessary for accomplishment must be definite and complete.
- (d) The order must be clearly expressed.
- (e) The method of issuing the order must be carefully considered, as, for example, a verbal order carries the force of personality with it, whereas a written order carries permanence and if not thoroughly understood, may be read again.

From the above it becomes apparent that authority and responsibility for the control and reduction of costs becomes a primary obligation not only of the major executives, but of all departmental heads and supervisors as well. Every phase of management is involved. The cost department may show the way to lower costs, but every department has its share of the responsibility. "After all," states a recent writer, "cost control is really a question of sound efficient management, together with the use of recognized methods and conformance to certain definite business fundamentals. . . . Our methods and systems . . . are no better than the man who operates them. In the hands of skillful and capable men they seem to perform wonders,

² Gantt, Henry L., *Industrial Leadership*, p. 8. Yale University Press, New Haven, Conn., 1916.

while in the hands of incompetents they become mere snarls of red tape, hollow husks of useless form."⁸ Does not this emphasize anew the responsibility placed on the cost accountant not only for the correct *operation* of the system of cost control, but also for the proper *construction* and fullest *maintenance* of the system itself?

Responsibility Must Be Specific and Definite

This responsibility for the control of costs must be specific and definite, rather than general and unallocated. Furthermore, full cost control cannot be exercised through the accounts alone, but must be based upon co-operation between the cost accountant and the operating man. Here the responsibility is peculiarly the cost accountant's, for he must gain the confidence and co-operation of the factory people if his cost accounts are to be other than dead and mechanical things. The correctness of the cost accounts, and therewith the value and efficiency of the entire system of cost control, rests very largely upon the dependability of the original sources of cost information. It is fundamental, accordingly, that the cost accountant and the operating man work in close co-operation if responsibility for cost control is to be definitely allocated and maintained. May we not say, therefore, in concluding this section of our discussion of underlying principles, that efficient cost control necessitates the placing of definite responsibility, together with the granting of sufficient authority to carry out such responsibility, and that the full and complete accomplishment of both is dependent upon the co-operation, understanding, and harmony of the cost accountant and the operating man? Thus do *responsibility* and *co-operation* become the life blood of cost control.

Means of Measuring Performance Needed

A fourth underlying principle of cost control is that it must provide a means of *measuring performance* or *efficiency*, or both. This measurement may be on the basis of the entire plant, of a department, or of an operation, a job, or an individual worker. Two general plans of measurement are in use. One is to compare current performance with past performance, a method which has considerable value, but which is not nearly so worth while as a comparison of the present with some carefully predetermined standard. Standards have accordingly become the more common basis by which results are measured.

⁸ Wells, Ralph G., "Cost Control from the Standpoint of the Operating Executive." *N.A.C.A. Bulletin*, March 15, 1936, pp. 748-749.

A "standard" is a measuring stick by which something else is rated or evaluated. A standard is also something which, according to Webster, is reasonably attainable. Through the so-called standard cost system a definite measure or standard is provided by which to judge performance and efficiency. Standard costs, or budgeted costs as they are frequently called, are scientifically determined in advance; they represent "the amount that a given operation or job . . . *should* cost under normal operating conditions. . . . They represent the reasonable expectancy as to operating performance . . . and so fixed reflect an attainable degree of plant efficiency and become a source of stimulus to the organization. . . . When . . . combined with wage incentive plans . . . they become not only a measure of actual accomplishment but also an incentive to still greater accomplishment."⁴

Steps in the Establishment and Use of Standards

It is not the purpose in this paper to enter into a discussion either of budgets or of standard costs, other than to point out that they serve to fulfill one of the underlying fundamentals of cost control, namely, to provide a *measure* of performance and efficiency. In providing for this phase of cost control there are three logical steps to be taken, namely, (a) establishing the standards of performance, (b) recording the actual performance, and (c) comparing the actual performance with the standard. The concluding step consists, again, of two distinct processes if complete cost and operating control is to be secured, namely, determining the amount by which the actual has varied from the standard, and analyzing the causes of each variance, thereby locating waste and inefficiency and fixing the responsibility for them.

To the extent that cost control provides a measure of performance and efficiency, both in the manufacturing and sales divisions of the business, it is helping to satisfy the demands for the company's products "with the smallest possible expenditure of money and effort consistent with quality and service requirements." Moreover, by having that measure constantly available, unfavorable factors or adverse conditions are quickly revealed and proper action may be taken to correct the situation. Thus, not only is efficiency maintained or restored, but also the industry is stabilized, wages and employment are improved, and profits are more definitely assured.

⁴ Reitell, Charles, and Johnston, C. E., *Cost Accounting, Principles and Methods*, p. 11.

Reports of Accomplishment

A fifth underlying principle of cost control is that there shall be a series of *reports* or *presentations* to the various classes of executives setting forth accomplishment, comparison of accomplishment with the standard, and complete explanations for variances. These reports must have as a primary goal assisting the executives to improve the efficiency of the organization, and thereby increasing its profits. The guiding force in business is management, and management must be kept informed if it is to function intelligently and make decisions wisely. Moreover, management must look ahead; it must be dynamic, for if a business does not go forward, it will soon be eliminated by its competitors.

Reports, if they are to be useful, must be gauged to solve the problems confronting the executives who are to use them. For purposes of this discussion these executives may be divided into three general groups or classes.⁵ The first group may be designated as the minor or subordinate executive, consisting of foremen, section chiefs, gang bosses, et cetera; the second group may be called the specialized or departmental executives, including the superintendent, works manager, purchasing agent, office manager, auditor, and the like; the third group includes the elected and appointed officers and other top executives of the business. The interests and responsibilities of these groups are obviously quite different and distinct, and the reports coming from the cost department must meet the specific responsibilities and needs of the various individuals comprising the groups.

Reports for Minor Executives

Reports for the minor or subordinate executives must take into account that these are the people who direct performance at first hand. Cost presentations for these men must of necessity reflect this close relationship. Items for which they are responsible and over which they have control should be reported to them. Such reports should be accurate, clearly and simply presented, and promptly delivered or made available. Thus, one large industrial, of whose practice I am cognizant, has for years followed the plan of reporting by 10:30 A.M. daily to each foreman, on the performance in his department for the preceding day. If output had materially decreased, or costs had bounced upward, the foreman could ascertain at once the reason

⁵ See *The Presentation of Costs for Executives*, pp. 3-4. National Association of Cost Accountants, New York, N. Y., 1928.

therefor. Was material held up? Did the machine break down, or the power go off? Was the operator ill? Or what did happen? The foreman was responsible for obtaining the explanation, and reporting it back to the cost department. In this manner the daily or weekly cost reports not only enable the foreman to maintain satisfactory performance, but they also assist the general office in maintaining control throughout the organization.

Reports for Departmental Executives

The specialized or departmental executives have heavier responsibilities, for their decisions affect a major division of an enterprise. The cost reports furnished them, accordingly, should be in more summarized form, dealing with the activities of the department as a whole rather than with the individual workers in it. Moreover, such reports may frequently cover a longer period of time, such as the month, the quarter, or even the year, instead of the day or the week. These reports should also relate more particularly to the major cost elements within the department, such as a comparison of actual expense or production for a given period with the standard for that same period. Reports on new undertakings, on the departmental budget and many such matters will enable the departmental executive to make his fullest and most constructive contribution to the progress and success of the organization.⁶

Reports for General Executives

Finally, we come to the cost reports for the general executives. Such reports should be concerned with long-time sweeps, and should deal with those larger trends and major elements that affect the very foundations of the business. They should be presented as promptly as possible, preferably in comparative form, and by the method which will enable the executive who is to use them to best comprehend their meaning and significance.⁷ Cost reports thus presented will materially aid executives in determining financial policies, in setting budgets, in establishing standards, in controlling inventories and in developing better leadership. In fact, in the well-chosen words of former President Harry Bullis, "The proper presentation of correct costs and the intelligent use of cost data will bring not only efficient and economical operation, greater per capita productivity, and increased

⁶ *Ibid.*, pp. 41-43.

⁷ *Ibid.*, pp. 93 and following; also, pp. 158 and following.

profits, but also satisfaction and joy to the individuals concerned in the realization that they are accomplishing worth-while results."⁸

Recognition of Human Values

A sixth principle, which I believe is fundamental in cost control, as it is in all other phases of business activity, is to give recognition, so far as possible, to the *human values* in business. Business does not consist of machines and merchandise, or even of money; it consists primarily of men—men who employ and men who are employed. These material things may form the body of business, but it is *men* that give business a soul.

Some may argue that proper recognition is being given the worker through the bonus and the wage incentive plan. Here, however, the motive is primarily greater profits for the organization. What I refer to is that more intangible recognition—a friendly word of encouragement, a hearty commendation for work well done—which costs nothing to give, but which I venture to say will do more to reduce expense and increase production than all the cost techniques that have been or will be devised. Some one has rather dramatically visualized control in terms of three words—*organize, deputize* and *supervise*. To these I wish to add the fourth, which gives the spark of life to the other three—*recognize*.

Summary

My message is completed. To some there may be other principles which are fundamental to any system of cost control, but I believe that those discussed in this paper suffice to show the true and fundamental nature of the problem. A system of cost control which is *workable*, that is, which is practical, one which is as *simple* as the circumstances will permit, one that places definite *responsibility* for accomplishment, one that provides for *measuring performance* and efficiency, one which furnishes in workable form *reports* of accomplishment to the executives concerned, and, finally, one which gives *recognition to the human values* in business, gives any organization or industry a control device which is immeasurable in its value and far-reaching in its effect. It will prove a primary factor in the stabilization of industry, which means, in turn, not only a greater assurance of continuity of employment for the worker and of profits for the owner, but also that business in the composite will more effectually meet its social obligation of providing better living standards for our

⁸ *Ibid.*, page 178.

millions of Americans. This may sound idealistic, but actually it is intensely practical. To the cost accountant, moreover, such control in industry opens up additional vistas and unexplored possibilities, and makes of his work one of the great callings of the business world.

CHAIRMAN MOORE: Dean Jackson, we are very appreciative of the comprehensive coverage of the underlying principles of cost control that you have given us.

Before proceeding with the next paper and while these principles are fresh in our minds, I think it might be advisable to see what questions or contributions to this topic you would care to make. The meeting is now open for questions and discussion.

W. B. CASTENHOLZ (*President and Educational Director, Accountancy Training Institute, Chicago, Ill.*): There is very little to add to Dean Jackson's paper but I should like to ask him one question. Would you, Dean Jackson, recommend that the same cost organization which assists in the direction of the activities in the factory should also take upon itself similar functions with regard to the control of activities in the distribution field?

DEAN JACKSON: I think that is a matter of technique and I would prefer not to answer the question. I fear that I would get over into my colleague's field.

MR. CASTENHOLZ: Would it possibly affect the principles of control also?

DEAN JACKSON: Perhaps you might elucidate, Mr. Castenholz, on what you have in mind.

MR. CASTENHOLZ: I have in mind that the activities of the selling end of the business are entirely different from those in the manufacturing departments. The appeal for activity from men in that field is entirely different from the sort of appeal we would make to factory workers. The type of contact that your selling organization must make is entirely different from that which comes to the people who are employed in the plant. It seems to me that possibly the cost control principles might have to be somewhat altered in connection with controlling the distribution activities of a business. I understand we are to discuss the cost control of distribution activities Thursday.

DEAN JACKSON: Of course, from my own viewpoint, it would depend to a very large degree upon how you defined "principles." In discussing the principles I excluded, on the whole, the question of organization. I did not, for example, touch upon the question of whether or not the cost accountant should be under the controller or under the operating man. I realize that is going to vary somewhat in different organizations, since it is dependent upon the personality and experience of those who are operating the different organizations.

It seems to me that in most cases the principles which I have enumerated would apply equally well to the control of distribution costs or the control of manufacturing costs. In other words, when it comes to a question of a system that is workable, one which is as simple as conditions will permit, one which definitely places responsibility, and one which provides a system of reports on accomplishment, the principles would apply equally well to both production and distribution.

MR. CASTENHOLZ: That is what I wanted to know.

CHAIRMAN MOORE: Is there anyone who would like to add any principles to Dean Jackson's contribution? Are there any other questions?

Having seen the picture of the underlying principles of cost control, we next come to the application of these principles in "The Tools of Cost Control." We will attempt to show those tools of cost control that are provided to aid management toward more profitable operation. Our speaker will present a case study on "The Tools of Cost Control." It is a pleasure to introduce Mr. William E. Perry, Controller and Director of the Scranton Lace Company.

TOOLS OF COST CONTROL

WILLIAM E. PERRY

Controller, Scranton Lace Co.,
Scranton, Pa.

IT WAS with considerable pleasure that I accepted your Committee's invitation to address you this afternoon. It is indeed a privilege to discuss with you this interesting phase of cost control work. I trust that this may prove a mutually profitable session and that I may have the benefit of your ideas in exchange for my own. I have assumed that you would prefer a discussion of a few of the more important tools of cost control rather than a general treatise on the

whole subject; and in order to be on familiar ground I have selected the tools for discussion from among those in use in the company with which I am associated. By confining our case study to one company, we can better co-ordinate the use of these various implements.

The tools which I have chosen seem to fall quite logically into three distinct groups, which I have named basic tools, tools for current use and incentive tools.

BASIC TOOLS

It seems to me that in handling this problem of cost control every accountant, together with his senior officers, must select at least two tools of fundamental importance. The first tool is the group of individuals in the organization who are to be entrusted with the responsibility for controlling costs. The second is the system which shall be used as a means of attaining cost control. These two are very closely related. Certainly those who are to carry the responsibility for control must have a clear and workable understanding of the system used. As we discuss these two basic tools, I hope to convey to you an understanding of the method we have used in attaining this end.

The Executive Committee

The first basic tool in our organization is the executive committee, a group so called because all the members are both officers and directors of the company. The membership consists of the vice president in charge of manufacturing and his two assistants, the vice president in charge of sales and the sales manager, the controller, and the president of the company, who also acts as the chairman. You will note that these are the ranking officials in each division of the company. Each of them is specifically charged with directing the activities of his own division, including the control of its operating costs. The committee as a whole, however, is responsible for the determination of general policies and procedures affecting all divisions. In addition, it serves as a clearing house for suggestions, irons out inter-departmental problems, makes recommendations to the board of directors, and co-ordinates activities generally. Its last, but nevertheless one of its most important functions, is to make all the major decisions in connection with the annual review of costs and budgets. I would estimate that the executive committee holds about six meetings a year for the discussion of operating costs, general policies and procedure, etc. In the fall of each year a series of special meetings is held for the specific purpose of cost and budget review.

From this brief description you can see that this committee is fully responsible for the control of costs in all phases of company activity. We believe that much better results are obtained through it than by the independent action of the various officers. In the eight years of its existence it has been our most effective tool of cost control.

The Basic System

Our second basic tool is the system adopted for the control of costs. A great deal might be said about the extreme care that should be exercised in choosing the right system for this purpose. In passing, I would like to make only a few observations: (1) the system should be readily adapted to the particular industry; (2) it should provide for the collection of costs in such a manner that they are charged to the person directly responsible for controlling them; (3) it should provide standards for readily measuring the effectiveness of such control; and (4) the system, and the reports arising from it, should be clearly understandable both to those who operate it and those who use its information. Time will not permit me to give a detailed description of the system which we have adopted for our company's use. At any rate I believe you will be more interested in seeing how we make the system itself a real tool of cost control in the hands of the executive committee, so I shall devote my remarks to that phase of the work, bringing in only such parts of the system as are necessary to complete the picture.

The system which we use is a combined standard cost and flexible budget system. Due to its very nature there are several fundamental matters which should be decided by operating executives rather than by the accountant and his department. With a great deal of careful planning and study we have organized all these matters into one book which we call the master budget book. It is divided into three main parts, and in each part there are several sections. As the time for budget making approaches the accounting department prepares and records in the master budget book all the necessary preliminary data. When this work has been completed, the executive committee begins its sessions.

Basic Information

Part I of the book is entitled "Basic Information," and contains the following sections:

1. Basic Standard Capacity
2. Current Production Basis

3. Machinery Requirements
4. Standard Organization Chart
5. Standard Labor Rates
6. Standard Material Rates
7. Depreciation, Insurance and Taxes
8. Prorating Basis of Service Departments

Although we have not changed our basic standard capacity in the past eight years, the committee thoroughly reviews the level in use each fall. In the textile business, standard capacity is usually expressed in some term such as "picks" or "racks," which denotes loom motions or revolutions. An identical number of standard capacity picks or racks may produce different yardages or units of product, depending upon the qualities, styles and types of merchandise in current demand. This fact makes necessary the second section above in which standard capacity is translated into a current production basis. I might also state that this current production basis is broken down so that the schedules show the volume of work at standard capacity for every cost center in the entire mill. This information simplifies the determination of machine hours and machinery requirements in the third section.

The remaining sections on staff organization, labor and materials, prime burden, and prorating basis of service departments usually provide some very interesting discussions. No one wants to pay for the service departments, with the result that we usually arrive at a fairly equitable distribution of these costs. General wage trends, company policy, union relationships and like matters enter into the determination of basic labor rates; price trends, purchasing department forecasts, quality of product, status of inventory and similar factors are considered in setting material standards. The number of years remaining life of the major assets, insurance coverage, etc., are reviewed in the burden section.

I have not attempted to describe the detailed information schedules set up by the accounting department in each of the various sections named. Let me say that it is sufficiently clear and concise so that the members of the executive committee may consider the essential facts on each subject without consuming too much of their time. Altogether their review of Part I may take two or three afternoons. However, when it is finished they should have a good picture of the production program, the basis of cost computation, and the method of cost absorption to be used for the ensuing year. Very likely a few new policies will be decided upon during the course of their work,

and undoubtedly some of the controller's pet theories will be badly mutilated or entirely discarded. The decisions made by the executive committee in Part I are returned to the accounting department where, in reality, they are used as the basic information in preparing the next part of the master budget book.

Departmental Costs and Budgets

Part II is entitled "Departmental Costs and Budgets," and its contents are also reviewed in detail by the executive committee. In it we have set up a series of pages for each department, a sample of which is given in Exhibit 1 on pages 60 and 61. For ease in handling in subsequent records, all the figures shown on this form pertaining to the standard costs and budgets for the ensuing year are given for a standard accounting month. By referring to the exhibit you will notice that all items of expense arising in the department are listed down the left-hand margin. This type of sheet is used for the first year. Detail for subsequent years is placed on short leaves made by cutting off the item description column.

The first double column to the left is used to record the budgeted and actual expense experience for the first nine months of the current year, and is filled in by the accounting department before the executive committee begins its review. The next double column is not used until a later date when figures for the entire year are complete. If it is desired to look back to the experience of prior years, this same column is referred to on either the base sheet or on the inserted short leaves. In the remarks column the accounting department writes in any analysis which it believes may be helpful, as well as any questions or suggestions on any of the items.

The next column headed "Basic Information" contains all the data affecting this department which was secured from the various schedules in Part I. You will notice that the monthly standard capacity production for each operation is given, together with the standard direct labor rates. The direct material requirements are built up from the same source by applying the standard material allowances for each operation to the capacity production. The next column records the estimated standard cost of operating the department at 100 per cent capacity for one standard month. As the executive committee proceeds with its review, it determines and records in this column the 100 per cent cost allowance on all items not already filled in from Part I. Working to the right, the next column is headed "Allocation to Cost Centers." The work of breaking down the depart-

SESSION II

EXHIBIT 1

DEPARTMENTAL COSTS AND BUDGETS YEAR 1938

Dept.	Packing	No. 523	PAST EXPERIENCE												STANDARD COST BASIS														
			1937 To Date				1937 Full Year				Basic Inform.				Cost @ Allocn. Cost				BUDGET ALLOWANCE										
			Code	No.	Budget	Actual	Budget	Actual	Remarks	Units	Rate	Cap.	Press	Ticket	Box	Old Rates	100%	Cent											
DIRECT LABOR			\$	\$	\$	\$	\$	\$		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
Pressing.....	206-000																												
Pairs.....	-001																												
Panels.....	-002																												
Covers.....	-003	11,761	10,627	14,017	12,863																								
Ticketting.....	207-000																												
Pairs.....	-001																												
Panels.....	-002																												
Covers.....	-003	3,202	3,117	4,319	4,286																								
Boxing.....	209-000																												
Pairs— 6 to Box	-001																												
12 to Box	-002																												
Panels— 6 to Box	-003																												
12 to Box	-004																												
Covers— 1 to Box	-005																												
[6 to Box	-006	34,865	35,001	44,017	44,978																								
DIRECT MATERIALS																													
Boxes— 6's.....	404-049																												
12's...	-051																												
1 Cover	-056																												
6 Covers	-057	36,020	36,888	48,990	48,672																								
Chipboards.....	412-001	151	149	201	196																								
Cord.....	414-004	242	256	322	318																								
Labels.....	427-002	702	773	937	942																								
Tickets.....	465-015	3,027	3,021	4,126	4,133																								

SESSION II

Due to cost saving suggestion foreman is entitled to 7 months' allowance at old rates.

102,000 .0125
65,800 .0011
78,000 .0016 1,472 1,472

102,000 .0013
65,000 .0015
78,000 .0020 387 387

31,200 .0125
70,800 .0176
28,900 .0120
36,900 .0171
47,500 .0211
30,500 .0111 3,955 3,955

10,016 .0720
8,975 .0910
47,500 .0500
5,082 .1115 4,480 4,480

17,300 .0010 17 17
157 .1750 27 27

71,600 .0011 79 79

216,000 .0016 346 346

.0130 Give budget allowances.
.0014 at old rates to 7-31-38.
.0018 Allow on actual monthly production X rates.

Monthly production X standard cost rates.

3,955 Same as above.

4,480 Monthly production X standard cost rates.

27 79

ESSENTIALS OF COST CONTROL

61

EXHIBIT 1—Continued

DEPARTMENTAL COSTS AND BUDGETS YEAR 1938

Dept. Packing No. 523

PAST EXPERIENCE

Item	Code No.	1937 To Date				1937 Full Year				STANDARD COST BASIS			
		Budget	Actual	Budget	Actual	Remarks	Units	Rate	Cost @ 100% Basic Inform.	Allocn. Cost Cap.	Cent Press	Ticket Box	BUDGET ALLOWANCE BASIS
INDIRECT LABOR	527	\$ 1,502	\$ 1,466	2,050	2,027	James Smith Evan Hughes	173	.52					<i>Old Rates</i>
Handling.....	"						173	.49	175	75	80	20	100%—120% Full crew, Hughes 86 "
Supervision.....	562	3,210	3,210	3,975	3,975	Wm. Williams, Foreman John Jones, Asst. Forem.			200	70	40	210	Salary Index 80% to 120%.
Repairs—Labor..	555	180	165	240	201				120	10	5	5	Salary Index 90% to 110%.
EXPENSES AND SUPPLIES									6	2	2	2	Allow at all levels.
Cleaning.....	615	72	65	72	65	Allow clean-up week.			10	3	3	4	Includes stationery.
Miscellaneous....	655	90	78	120	106	Regular			10	7	3	..	Rebuild Press \$600.
Repairs Material.	673	90	65	120	96	Rebuild Press \$600.			50	50	50	50	Allow "as spent."
TOTAL DIRECT EXPENSE		\$95,114	\$94,881	\$123,506	\$122,880								\$11,354 \$1,706 \$866 \$8,782
OVERHEAD													
Depreciation.....	701	\$ 1,440	\$ 1,440	\$ 1,920	\$ 1,916	From basic Schedule #7.			160	80	40	40	Allow at all levels.
Insurance.....	702	225	225	300	297	From basic Schedule #8.			27	14	6	7	Allow at all levels.
Taxes.....	703	720	720	960	959	From basic Schedule #9.			82	48	17	17	Allow at all levels.
Boiler.....	801	855	840	1,140	1,056				95	50	28	17	Allow on pre-rating basis.
Power.....	802	225	229	300	302				27	18	2	7	Allow on pre-rating basis.
Plant and Bldg..	804	585	601	780	767				66	35	18	13	Allow on pre-rating basis.
Personnel.....	805	386	402	515	522				43	8	15	20	Allow on pre-rating basis.
GRAND TOTAL.		\$99,550	\$99,338	\$129,421	\$128,769								\$11,854 \$1,959 \$922 \$8,903

mental costs over the various cost centers is done at a later date by the accounting department, so I shall not discuss this procedure here.

The next column captioned "Budget Allowance Basis" is interesting in that it is the key to our flexible budget system. Here the executive committee records the allowance basis to be used in the monthly budget statements for each item at the various levels of production. On direct labor and direct material the allowance basis is monthly production handled on each operation times the standard cost rate. This gives the foreman a budget allowance each month for the actual work put through his department. The use of standard material rates eliminates the price factor over which the foreman has no control. Items marked "as spent" are allowed until the total amount budgeted for the year is exhausted. Other items are marked to be allowed in the month in which the expenditure is incurred, while on still other items definite schedules are set up.

Inasmuch as we are not attempting to give a complete outline of the system, I shall not describe the accounting department procedure in taking this part of the master budget book and from it developing operation cost sheets and standard pattern costs, or the setting up of standard cost earning records and monthly budget allowance records.

The executive committee will probably devote four or five afternoons to this part of the master budget book. I believe that they are without question the most profitable afternoons in the entire year. Their careful attention is given to every detail of cost in every department of the business. Every official must justify the expenditures made in the departments which he supervises. Many cost-saving suggestions are made, new manufacturing methods proposed and inter-department problems ironed out. Company policies are equally effective in all departments. By deciding the budget allowances at the various production levels the executives have preplanned what economies are to be made when volume declines. They have, in fact, set up the standards and the budgets.

Summary Section

Part III of the master budget book is a summary section which the accounting department prepares without the aid of the executive committee. It contains three schedules, one covering each of the two major products, and the last for the company as a whole. Each of these schedules is really a forecast profit and loss sheet for each level of production, as you will see by turning to a sample one shown in Exhibit 2. These are the schedules from which the profitgraph charts

EXHIBIT 2
EXPECTED RESULTS AT VARYING VOLUMES OF BUSINESS
YEAR 1938

	40%	50%	60%	70%	80%	90%	100%	110%	120%
<i>Production Volume</i>									
Nottingham—Racks	240,000	300,000	360,000	420,000	480,000	540,000	600,000	660,000	720,000
Marquisette—Picks	80,000	100,000	120,000	140,000	160,000	180,000	200,000	220,000	240,000
<i>Net Sales Value</i>	1,230,494	1,553,652	1,864,392	2,175,108	2,485,848	2,852,496	3,231,576	3,623,124	3,946,281
<i>Actual Manufacturing Expense</i>									
Raw Materials	391,392	493,740	596,088	698,436	800,784	903,132	1,005,480	1,107,828	1,210,176
Direct Labor	205,386	258,912	307,944	357,000	406,116	454,776	535,260	589,660	642,120
Indirect Labor	91,260	92,700	94,728	101,928	107,748	114,036	124,560	132,336	136,242
Direct Materials	42,869	55,232	63,252	73,392	83,628	94,080	104,448	114,816	125,220
Expenses and Supplies	25,428	26,784	27,960	29,124	30,300	31,464	32,640	33,804	34,928
Overhead	472,140	473,160	474,828	478,644	488,124	505,572	529,164	546,984	558,672
Idle Equipment	10,508	10,508	10,508	10,508	10,508	10,508	10,508	10,508	10,508
	1,238,983	1,409,036	1,575,308	1,749,032	1,927,208	2,113,568	2,342,060	2,534,936	2,717,866
<i>Manufacturing Variations</i>	$\{ -302,159 \quad -238,006 \quad -170,072 \quad -109,590 \quad -53,560 \quad -5714 \quad 2,342,060 \quad 2,534,936 \quad 2,717,866 \}$								
<i>Standard Cost of Goods Sold</i>	936,824	1,171,030	1,405,236	1,639,442	1,873,648	2,107,854	2,342,060	2,576,266	2,780,472
<i>Gross Profit Selling Expenses</i>	—8,489	144,616	289,084	426,076	558,640	738,928	889,516	1,038,188	1,228,415
<i>Trading Profit</i>	—430,239	—277,436	—134,552	472	124,960	291,724	423,172	600,832	730,253
<i>Miscellaneous Income—Net</i>	12,988	13,212	14,220	14,724	15,708	16,224	16,728	17,712	18,642
<i>Provision for State and Federal Taxes</i>	3,039	28,134	61,590	87,980	123,709	143,779
<i>Final Net Profit</i>	—417,251	—264,224	—120,332	12,157	112,534	246,358	351,920	494,835	605,116

are built, and they summarize into one picture all the work that has gone before. I believe that you are all acquainted with the various uses of such statements.

I have spent considerable time in developing the master budget book for you, because it is the means of accomplishing two very important objectives: (1) it gives the executives who are responsible for cost control a workable understanding of the cost control system; and (2) through it the executives assume the responsibility for making all the major decisions pertaining to standard costs and budget allowances. The completed book is virtually the "bible" of the cost control system, and as such is frequently referred to by both the executives and the members of the accounting department. It makes our system itself a real basic tool of cost control.

TOOLS FOR CURRENT USE

Let us now turn our attention to some tools which are used currently for the control of costs. Although I have praised the merits of a complete annual review of all items of cost, I also believe that adequate control of costs can only be achieved by constant vigilance on the part of operating officials and their subordinates. It is the accountant's responsibility to currently provide them with the necessary equipment for this purpose, and to measure for management the effectiveness with which such equipment is used.

The Chart Book

The Chart Book is the first report which we send out each month to the operating executives. The purpose of this book is to provide the officials with a broad knowledge of business conditions, both for business in general and the industry in particular, and to locate for them our company's position with respect to both. I believe that it is the accountant's responsibility to issue information of this nature for it creates a sound background for the determination of current operating policies, including those pertaining to cost control.

All of the charts are set up to cover ten years' experience by months, thus providing sufficient data to show trends. In our business we have found that department store sales and automobile sales are good indices for forecasting our own volume, so there are two charts for these comparisons. A third chart shows our current level of operations compared with the Annalist Index of general business.

The next group of charts is used to compare various statistics of

our own company with those for the lace industry as a whole. In this series there are charts showing the company's position in relation to that of the entire industry in production, unfilled orders, sold and unsold inventory, machinery in operation and employment.

The third group of charts is designed to keep our asset investment, liabilities, capital structure and operating ratios in line with ratios prevailing in the best companies in the textile field. For this purpose we have selected five prominent textile manufacturers whose statements are currently available. A series of small charts shows our cash, receivables, inventory and fixed investment percentages compared with these other companies. Similar charts are used for the liability and net worth side of the balance sheet, and for the operating statements.

The Executives' Handbook

Our next current tool of cost control is called the Executives' Handbook. Each executive has on his desk throughout the month a 9½" x 6" book of the ring binder type. These books have marginal tabs for the various subjects covered. When the monthly figures are ready, the books are collected and the sheets for the current month on each subject inserted immediately behind the marginal tab. Thirteen months' sheets are kept in the book, the oldest month being removed each time the reports are issued. The revised handbooks are immediately returned to the officials.

Let us take a quick look at the contents. The first section contains a statement of operations for the month and year to date. Supporting this are two other operating statements, one for each product. In the next section is a summarized balance sheet, also with a supporting page on which is given an analysis of working capital, turnover ratios for receivables, inventory, plant and total assets, book value per capital share and similar data. The third section is devoted to a detailed breakdown of inventories, also accompanied by turnover ratios. The section following is devoted to sales which are shown for the month and year to date by product, by source, by price list and by territory. Cancellations of orders are summarized by reasons for cancellation. The fifth section is devoted to production statistics. The month and year-to-date figures for each product are given by basic units and by quantity of each general type, and the per cent of standard capacity operation is shown. A summary is set up for damages by type of product. The last section presents shipment statistics by product, by

warehouse and by good and job merchandise. An analysis follows of all credits and allowances classified by reasons for same.

We have found these handbooks to be the most satisfactory method of presenting general figures in usable form. Against the background of the chart book they provide each executive with a good, comprehensive picture of current operations. Your first impression may be that this information is not sufficiently detailed to be useful as a tool of cost control. On the contrary, it points out the spots requiring further investigation. In addition the handbook is a real tool for the control of financial costs, for through it investments in inventory, receivables and plant are carefully watched. When thinking of cost control we must not neglect these financial costs, for per cent of profit times turnover still equals return on investment.

Monthly Budget Reports

Having given the operating executives a broad yet concise picture through the chart book and the handbook, we are now ready to dig down into detailed operating costs. The first detailed reports are the monthly budget reports. Each month we issue both a month and year-to-date statement, similar to the one shown in Exhibit 3, for every department in the entire company, including those in the administrative and sales divisions. These reports are issued in triplicate. The first two copies go to the executive who supervises the particular department's work. One of these copies is for his own use. He gives the second copy to the foreman in charge of the department, after reviewing with him the details of his operating expenses. The last copy, for all departments, is bound in book form and is sent to the president and controller for review.

In presenting these monthly budgets the accounting department tries to answer in advance any questions which may arise by appending analyses of out-of-line items. Of course, they do not anticipate all questions, so a "Request for Budget Information" form is provided all persons reviewing the budgets. This form is used to secure any additional information desired. The accounting department staff handles these inquiries promptly, and incidentally plays a game in trying to keep the number of requests as low as possible. This same information form serves another purpose. Sometimes the president, vice president in charge of operations, or the controller, wishes to have the foreman or official in charge explain a particular budget variance. In these cases "the shoe is on the other foot," and the form travels in the opposite direction.

The monthly departmental budget reports and the auxiliary information form are the tools which we employ for the continuous current control of detailed operating costs. We have made certain of their use by utilizing the conference method of review, and, as will be explained later, by tying them into our incentive plans.

EXHIBIT 3
THE SCRANTON LACE COMPANY
BUDGET CONTROL

Department	Mending and Inspecting		Period	March, 1938.
Items of Expense	Detail Account	Budget Allowance	Actual Expense	Actual Over Actual Under
Splitting	211	\$ 309.00	\$ 326.87	\$17.87
Inspecting	217	808.00	808.70	.70
Inspecting Nets	271	160.00	77.72	\$82.28
Drawing	273	644.00	588.53	55.47
Mending	274	4,827.00	4,786.89	40.11
Cutting	276	776.00	776.09	.09
Cleaning	306	15.00	12.99	2.01
Repairs Labor	314	20.00	.88	19.12
Fixing	317	10.00	11.95	1.95
Pressing	329	271.00	270.56	.44
Salary	330	512.00	512.11	.11
Other Labor	339	448.00	460.19	12.19
Sample Labor	347	16.00	15.67	.33
Miscellaneous	573	50.00	17.43	32.57
Social Security Tax.....	600	218.00	218.16	.16
Total Direct Expense....		\$9,084.00	\$8,884.74	\$199.26
Depreciation	701	\$ 200.00	\$ 199.74	\$.26
Insurance	702	31.00	30.68	.32
Taxes	703	60.00	59.71	.29
Boiler	801	51.00	68.77	\$ 17.77
Power	802	48.00	65.57	17.57
Plant and Building.....	803	68.00	113.30	45.30
Personnel	806	535.00	567.74	32.74
Receiving and Warehousing.	809	5.00	5.26	.26
Total Overhead Expense..		\$ 998.00	\$1,110.77	\$112.77
Grand Total		\$10,082.00	\$9,995.51	\$ 86.49

Damage Reports

Losses arising through damages and spoilage do not readily show up in the conventional operating reports, so we have provided a special tool for the control of this item. I believe that the most effective method is to arrange the accounting procedure so that damages can be traced back to the machines and operators causing them. Each

SESSION II

FIGURE 10B

THE SC

DEPARTMENT	MENDING & INSPECTION
OCCUPATION	Mender

EXHIBIT 4 (LEFT)

ESSENTIALS OF COST CONTROL

69

RANTON LACE COMPANY
PAYROLL

207-05-3774
685 DOROTHY IRENE REED
606 Depot St.
Scranton, Pa.
11 - 12 - 1978 5

BASE EARNINGS	TOTAL GROSS EARNINGS	ACCUMULATED EARNINGS	DEDUCTIONS						CHECK AMOUNT	CHECK NUMBER AND PAYMENT TERM	BASIS OF EMPLOYER'S TAX		
			SALARIES	FEES	LOAN	C. CHEST	R. ALMEN	G. A. F.			Old Age Benefit	Federal Unemployment Tax Payment	State Unemployment Tax Payment
116.71	23.04	116.40				5.4	1.60	7.9	21.01	JAN 6 1938 6739	22.04	22.04	22.04
116.89	22.59	116.9				5.9	2.29	7.9	21.29	JAN 23 1938 7340	22.49	22.49	22.49
116.94	21.60	117.0				5.6	2.58	7.9	22.58	JAN 28 1938 7951	21.60	21.60	21.60
116.20	19.90	100				7.0	1.87	7.0	19.70	JAN 27 1938 8553	19.90	19.90	19.90
										FEB 3 1938			
										FEB 10 1938			
										FEB 17 1938			
										FEB 24 1938			
										MAR 3 1938			
										MAR 10 1938			
										MAR 17 1938			
										MAR 24 1938			
										MAR 31 1938			

EXHIBIT 4 (RIGHT)

month we issue a damage analysis report which shows just what machines and operators have made damaged goods, and whether the amount of the damages is above or below the standard tolerance. Such reports, with nice red rings around the bad spots, usually get prompt attention.

Labor Efficiency Report

Another rather subtle item of cost that requires a special tool of control is the efficiency of productive labor. Employees, even piece workers, who do not produce a fair volume of production, cost real money. Using our payroll form as a basis, we have devised an efficient, yet comparatively inexpensive tool for measuring this factor.

There is set up in Exhibit 4, pages 68 and 69, a sample payroll sheet. This is the original record on which all payroll computations are made. You will notice that it is assigned to only one employee and is good for an entire quarter. It is a tumble sheet so that only two sheets are required per employee each year. The sheets for all of the employees in a department are placed under one tab in the payroll book, grouped by occupations, and a control sheet follows at the end of each department. We have found this to be a very economical payroll to operate, for without any auxiliary records whatsoever it handles annual earnings for internal revenue reports, old age benefit taxes for both employer and employee, unemployment taxes and all types of payroll deductions. It also serves as a check register.

At the end of each quarter all columns are added and totals posted. The labor efficiency report prepared from the payroll is given in Exhibit 5. The upper part of this report covers a group of piece-work employees and, as you see, their efficiency is measured by their respective earnings per hour. The lower half of the report covers a group of time-work employees, the efficiency of this group being measured by the number of production units per hour. This report is used by both the operating officials and the department foremen. When they desire to look further into the record of an individual employee in order to get the trend of efficiency, etc., they refer to the payroll itself.

Material Usage and Stock Report

The monthly budget reports provide a satisfactory check on the quantities of materials used in production. They do not, however, measure the efficiency of the purchasing and stores departments, nor

EXHIBIT 5
LABOR EFFICIENCY REPORT
FIRST QUARTER—1938

	Standard \$.60 Hour		
	Total Hours	Total Earnings	Earnings Per Hour
<i>Menders</i>			
Mary Jones	518	\$326.86	.631
Catherine Smith	517	320.54	.620
Mary Munley	518	317.53	.613
Hilda Burke	509	309.98	.609
Ruth Hughes	512	310.78	.607
Helen Jones	496	298.09	.601
Alice O'Haro	508	295.15	.581
Sadie Norton	501	271.04	.541
Margaret Capwell	517	249.19	.482
Standard—96 units per hour			
<i>Inspectors</i>			
Ruth Richards	51,032	516	98.9
Fern Jones	49,547	502	98.7
Mildred Lewis	48,112	496	97.0
Angela Ryan	49,174	508	96.8
Anne Doud	47,124	495	95.2
Gertrude Cahalin	48,179	512	94.1

do they keep the warehouse clear of stock that has become obsolete. A supplies or raw material inventory may show a satisfactory turnover and still have buried in it obsolete materials which steadily depreciate in value as time passes. As a tool for the control of this factor of cost we issue a quarterly report, listing thereon all important items of stock and showing receipts, consumption, inventory and maximum and minimum levels for each. Here again a red ring around a bad spot usually secures prompt action in either finding a way to use up the stock or otherwise disposing of it.

Special Reports

I have mentioned in this group the most important current tools of cost control that are in use in our company. They are not many in number, but we believe that they cover the major elements of operating cost. It has been our policy to issue only a few reports, but to have them clearly point out where action is required. However, as a supplement to this policy we issue occasional special reports on matters which should receive the attention of operating officials. Conversely, the officials sometimes ask the accounting department to prepare a special report on some phase of operations on which they would like to have further information. Such special reports are very effective tools of cost control.

INCENTIVE TOOLS

The last group of tools is made up of those used for the creation of incentive. Our company believes in the use of this type of tool as a means of attaining adequate cost control. Development of the proper tools, however, is a problem requiring much study and careful consideration. Inasmuch as most incentive tools involve profit sharing, they must be well balanced so as not to infringe upon the rights of stockholders. Further, they must have a sufficiently strong appeal to those who work under them to command a real interest in accomplishment. We have in operation three incentive plans which I shall describe briefly.

Foremen's Bonus Plan

The first plan applies to all mill foremen and is called the Foremen's Bonus Plan. It has been in effect for several years, and was adopted for the purpose of securing the foremen's co-operation in controlling their respective department's costs through the use of the

monthly and year-to-date budget reports. At the end of each fiscal year the foremen receive in cash a sum equivalent to 10 per cent of the savings shown by their final budget report. Bonuses have been paid under the plan every year since its inception. The plan has resulted in the suggestion of many cost-saving ideas by the foremen. In order that all suggestions be real economies and not merely a "chisel" on the quality of the product, we insist that they be approved by the operating executive in charge before becoming effective.

Salary Adjustment Plan

Our salary adjustment plan is really a method of salary payment with an incentive feature. It covers approximately one-fifth of our employees. All persons coming under its provisions are on the monthly salary payroll, which includes officers, foremen, salesmen, and office employees. The plan is based on the premise that salary payments to the staff organization should be, within certain limits, in relationship to the company's ability to pay as measured by profits. On this premise an index has been established for the purpose of expressing the degree of profit attainment. The index is a fairly simple arrangement, and to illustrate the idea I have given a set of fictitious figures in Exhibit 6. At the end of each quarter the index is established for the period and is expressed as a percentage.

Perhaps the workings of the plan will be a little clearer when applied to an individual employee, so I have set up a typical example in Exhibit 6. This employee, John Jones, is given a base or 100 per cent salary of \$200 a month, a minimum salary of 80 per cent of base or \$160 a month, and a maximum salary of 120 per cent of base or \$240 a month. During each month of the quarter he is paid his minimum salary of \$160. At the end of the quarter the index is figured and is determined to be 110 per cent. By applying the index to this employee we find that he was entitled to receive a salary equal to 110 per cent of his base, or \$220 a month. Since he was paid only his minimum of \$160 each month, there is due him an adjustment of \$60 a month for three months, or a total of \$180. This is paid to him the first month after the quarter has ended. Had the index percentage been below the minimum percentage assigned to him, then no adjustment would be paid. Conversely the maximum possible adjustment he can receive is 120 per cent of his base salary, even though the index may be at a higher figure.

The employees like this plan very much. They establish their scale of living in accordance with their minimum salary level. The quar-

EXHIBIT 6
SALARY ADJUSTMENT PLAN

Net Profit Scale for Determining Index

<i>When net profit per common share in the quarter is</i>	<i>The Index for the quarter shall be</i>
\$0.50 per share	80%
.60 " "	85%
.70 " "	90%
.80 " "	95%
.90 " "	100%
1.00 " "	105%
1.10 " "	110%
1.20 " "	115%
1.30 " "	120%

Plan Applied to Individual Employee

- (a) Employee, John Jones, is given the following salary arrangement:

Base	or 100% Salary	\$200.00 Month
Minimum	or 80% Salary	160.00 Month
Maximum	or 120% Salary	240.00 Month

- (b) Salary paid

January 1938	\$160.00
February 1938	160.00
March 1938	160.00

- (c) The net profit for quarter is \$1.10 per share, giving an Index of 110%.

- (d) An Index of 110% in accordance with salary arrangement in
(a) determines that monthly salary should have been

110% of \$200.00 or Monthly payments	\$220.00 month 160.00 "
Adjustment due or For three months	<hr/> \$ 60.00 " \$180.00

terly adjustments are used for investments, mortgage payments, babies, automobiles, radios, and the like. They feel that the company is willing to pay them in strict accordance with its ability. They know there is no delay in receiving salary adjustments, as is frequently the case where salaries are changed by giving a flat percentage increase.

From the company point of view, the plan is practically an automatic tool for the control of salary costs. When profits shrink or disappear this item of cost automatically declines. The plan creates an excellent morale among the employees, and unpleasant salary reductions are eliminated. The employees accept in good grace a quarter when no adjustment is paid, for they realize that they have already received maximum adjustments in previous quarters. Further, we find that the plan provides a real incentive for all employees to watch their expenses, as they realize that waste and extravagance have a direct bearing on their compensation.

Executive Award Plan

The third incentive plan applies only to the company officials included as members of the executive committee. It is similar to many other plans in current use, providing for the creation of an executive award fund out of all profits over and above a fixed return on invested capital. Our plan provides that this award fund shall be 12½ per cent of all profits over and above those required to produce a 7 per cent return on the investment. The award is distributed annually in cash, the amount to be received by each officer being determined by a non-participating committee from the directorate. It is this plan that keeps the executives continuously interested in the control of costs.

The Accountant's Part in Cost Control

At this point I would like to make a few remarks in regard to the accountant's position in respect to achieving adequate cost control. In this field of his work he has a peculiar position, for it is not under his complete jurisdiction, and he does not actually do the control work in the various divisions of the operation. You might almost say that he operates only in an auxiliary capacity; that his responsibility ends with the furnishing of some tools with which others shall perform the actual work. Despite the apparent limitations of such a situation I believe that the accountant must, nevertheless, ultimately accept the full responsibility for seeing that cost control is really achieved. If he accepts this viewpoint, I am sure he will approach

the fulfillment of his responsibilities in this direction with the proper attitude. The job, then, requires not only a real knowledge of accountancy and of the various types of reports, charts, committees, budgets and incentives which can be used to secure results, but in addition real executive ability in co-ordinating his work with the operating officials. The accountant must develop a fine sense of balance so that he can adapt his tools to suit the likes and preferences of operating men without losing sight of his ultimate objective. A good cost control tool, like a hammer or a saw, should eventually show the imprint of the one who has been using it. Only by accepting this broad interpretation of responsibility can adequate cost control be finally achieved.

The various tools which I have described are in use in one particular company. I know, however, that many of you have developed some interesting and useful tools of your own, and I hope you will take occasion during the discussion period to tell the rest of us about them.

CHAIRMAN MOORE: Thanks very much, Bill. That was very fine. From Mr. Perry's remarks you can see very clearly the application of the principles that Dean Jackson enunciated. This system of control has been fitted to Mr. Perry's particular enterprise. It is simple—responsibility is fixed. Responsibility does not work through the accountant alone but through the co-operation of others. There is complete co-operation between the cost accountant and factory and sales executives. The means of measuring present performance against standards is clearly available. The reports of accomplishment are given while the news is hot. And finally, there is a complete recognition of human values in this particular business.

Bill has given us a lot of material to bite into, and I am now going to throw the meeting open for discussion.

RAEFORD BAILEY (*Secretary and Office Manager, Mother's Cake & Cookie Co., Oakland, Calif.*) : I should like to ask Mr. Perry whether the adjustments paid to employees are considered as a cost in the period in which they are earned by the employees or the period in which they are paid? Are they accrued before you close for the period?

MR. PERRY: The quarterly salary adjustments are accrued on an estimated basis in the quarter to which they apply.

MR. BAILEY: Then I wonder how you reconcile your social security records at the end of the fiscal year when you must make a return on actual salaries paid? Also, what about the earnings figures which the employees report for income tax returns? The employees report on a cash basis and pay the tax on the money actually received by them and not on the amount accrued on your books.

MR. PERRY: Our salary payroll record was designed so that earnings reports for social security and income taxes would be readily available on the proper basis. This was accomplished by providing separate columns for recording regular monthly salary payments and for quarterly adjustments.

DOUGLASS M. BARROWS (*Assistant Secretary, El Dorado Oil Works, San Francisco, Calif.*): I am interested in Exhibit 2, entitled "Expected Results at Varying Volumes of Business." It is similar to something which I have been working on for a considerable period of time. Half way down that exhibit you have the lines "Manufacturing Variations," and "Standard Cost of Goods Sold." Does "Manufacturing Variations" represent the difference between your budgeted cost and your actual cost, or just what does it represent?

MR. PERRY: This statement was prepared from the department schedules which we set up in Part II of the Master Budget Book. The accounting staff works out for each department what it would cost to operate the department at various levels of production. These estimates are then summarized into the various types of costs appearing under the caption "Actual Manufacturing Expense." Since all of the figures used were taken from the budget allowance records, the figures are in fact the total budgets for each of the various levels of production. Now let us tie in the standard costs. The standard costs are based upon the 100 per cent capacity column, so at that point the budgets and the standards are one and the same. At any other level than 100 per cent the standard costs will earn only in direct proportion to volume. For instance, at the 50 per cent level you will notice that the standards have earned only half of the amount earned at the 100 per cent level. The difference between the amount earned by the standard costs and the amount budgeted will appear in the monthly operating statement as an unabsorbed manufacturing variation.

JOSEPH A. PETRICK (*Cost Accountant, Kellogg Switchboard & Supply Co., Chicago, Ill.*): I wonder if Mr. Perry would tell us

why he sets the base salary on Exhibit 6 at \$200 a month instead of setting the base at \$160 a month. The result would be the same, but I was thinking about the way the employees look at it.

MR. PERRY: I suppose that this plan of salary payment would operate just the same if you were to call the minimum salary the base salary. We feel that by setting the base in the middle between the minimum and the maximum it brings out more clearly the purposes of the plan. In other words, the idea on which the whole thing is founded is that there are times when we can afford to pay salary adjustments, and there are other times when we cannot afford to pay them. We think that the minimum and maximum arrangement conveys to the employee the basic principle of the salary adjustment plan.

J. L. OTTERMAN (*Chief Cost Accountant, The Aluminum Cooking Utensil Co., New Kensington, Pa.*): I should like to ask Mr. Perry to please explain just what he means by idle equipment in Exhibit 2?

MR. PERRY: You will recall that Section 2 of Part I of the Master Budget Book was devoted to machine hours and machinery requirements. As we develop our current production in Section 2 it is set up so that we can readily work out in Section 3 just how much machinery we are going to use in the next year. We do not attempt to exclude the cost of equipment which is in and out due to temporary shifts in styles because we must continue to carry that type of equipment, but we do exclude the cost of equipment which seems to be permanently out of use. The carrying charges on all excluded items are charged to idle equipment. For the purpose of this exhibit, I have entered the cost of such idle facilities as a manufacturing expense; in actual practice we do not include it in our standard inventory costs but treat it as a charge against profits.

P. K. SEIDMAN (*Resident Manager, Seidman & Seidman, Memphis, Tenn.*): I have two questions, one in the nature of a specific question and the other a more academic one. First, how do you determine your sales expenses for the various volumes of business, and secondly, what do you do in the way of bonus arrangement where the employee resigns?

MR. PERRY: In setting up our selling expense budgets we use the 100 per cent volume as a starting point, for there we can tie in directly with mill operations. The sales division is departmentalized in the same manner as the manufacturing end of the business. The executive committee reviews each item of expense in each department and sets up a budget allowance for each of the various levels. Some sales expenses are almost fixed charges, but others such as advertising and salaries can be fairly well controlled.

The answer to your question regarding salary adjustment when an employee leaves is that the plan definitely provides that an employee must be at work and in continuous employment at the time the adjustment for the quarter is due for payment or he is not entitled to receive it.

GEORGE E. HALLETT (*Office Manager and Accountant, Tung-Sol Lamp Works, Inc., Newark, N. J.*): Is there any purpose in leaving off the general and administrative expenses in Exhibit 2? Why are the fixed expenses shown in detail in Exhibit 3?

MR. PERRY: Your first question relates to the absence of administrative costs on Exhibit 2. The handling of administrative costs has been the subject of considerable controversy. Perhaps you will not agree with our method, but at any rate I shall be glad to explain it. We accumulate all of our administrative expenses by departments for budget control purposes. However, for standard costs we prorate such departments in the same manner as any other service department. Through this procedure some of the administrative expense gets into inventory costs and some goes over to the sales division. Due to this method of treatment, general and administrative expenses do not appear as a separate item in the exhibit.

I believe you also asked why the fixed costs were shown in the monthly budget statements. Here again you might argue the value of giving department foremen these particular items of cost, but through a period of years we have found it the wise thing to do. The foreman has charge of certain assets and by showing him the depreciation and insurance costs, it may in a small measure make him think about the value of the equipment that is in use. The charges to him for the respective service departments should make him realize that steam, power, etc., cost money and should not be wasted.

W. L. MORROW (*Cost Accountant, American Paper Goods Co.*,

Chicago, Ill.). Does the indirect labor figure shown on Exhibit 2 provide for the bonus to foremen?

MR. PERRY: There is no provision in the indirect labor cost for the foremen's bonus plan. Such bonuses as are paid to foremen at the end of the year are paid out of profits.

WILLIAM E. JACKMAN (*Controller's Department, Eastman Kodak Co., Rochester, N. Y.*): Is the Labor Efficiency Report (Exhibit 5) placed on the bulletin board in the department for the employees' observation or is it merely handed to the foremen?

MR. PERRY: The report goes to the operating official supervising the department's work. Here again we use the conference method of review. The official in charge and the foremen usually sit down together with this report, and quite frequently they have the payroll book on the table while they are doing it. If there are any employees who are below the standard that has been set, they usually turn to the Employees' Payroll Sheet (Exhibit 4), and examine it to see if they can discern any particular thing that has caused the inefficiency. These reports are also compared with those of previous quarters so that the history of the employee may be developed. We do not give the foreman a copy of this report for him to take out into the factory and store in his desk. It is all done by the conference method.

EDWARD P. GILLANE (*Works Accountant, Underwood Elliott Fisher Co., Bridgeport, Conn.*): I should like to know whether in setting up the budget allowance for repairs and maintenance, you base the allowance on past performance or whether you review the entire factory operation to determine what the cost should be for the following period.

MR. PERRY: The executive committee takes into consideration both of these factors. We try to segregate our repair costs as between normal repairs and special repairs. After this has been done for a few years, it is a fairly easy matter to arrive at the figure that should be included for normal repairs. We set this allowance first. We then determine whether there are any special or extraordinary repairs required for the ensuing year, and if so make a separate allowance for them.

In issuing our monthly budget reports we allow the normal repair

amount each month. The allowance for the extraordinary repairs is given in the months in which the expenditure is made.

C. H. TOWNS (*Partner, Loomis, Suffern & Fernald, New York, N. Y.*): In setting up the budget does the executive committee use as a basis the information which it has and information which it gets from the accounting department, or does it get tentative budgets or estimates from the department superintendent or from the foremen in the factory? If you do get such estimates, how far down the line do you go in getting them?

MR. PERRY: Our accounting department staff is in close touch with mill operation, and consequently is able to incorporate in the schedules in the Master Budget Book most of the current changes in staff, labor rates, expenses, etc. The executive committee reviews this information, and revises it to include any proposed changes in staff, rates, methods, etc., on which the accounting department has not yet been informed. On such expense items as normal repairs, lubricants, etc., we have found it quite satisfactory to set our allowances on the basis of past experience. The exhibit shows the figures for only one year, but our Master Budget Book now actually has in it five years' experience. Due to the procedure followed, we do not go beyond the executive committee in securing information while preparing the budgets. I might add, however, that the foremen are always consulted when the accounting department is preparing its standard operation rate sheets. Thus, indirectly, they do contribute to the budget make-up.

B. W. SHREDER (*Cost Accountant, Sidney Wanzer & Sons, Inc., Chicago, Ill.*): Realizing that accounting is not an exact science, I am interested in knowing what method you use in computing the profit for use under your salary adjustment plan. Further, what opportunity has the employee to verify the amounts paid?

MR. PERRY: We have set up in the plan a very careful definition of what shall be considered as net profit, solely for the purpose of the salary adjustment plan. It is neither profit per books nor federal income tax profit but a figure which has been carefully determined so as to be fair to the employees.

The employee does not have any direct way of finding out whether it was the proper payment. Perhaps he could judge fairly well if we

issued quarterly statements. I will say, however, that all computations of the general index are audited each year by our independent auditors.

C. W. VERNON (*Cost Accountant, Walker Manufacturing Co., Racine, Wis.*): I should like to ask whether you have had any unfavorable reaction on the part of employees who were doing hourly piece work since you instituted the bonus plan for foremen?

MR. PERRY: No, it has not had such an effect. We have used the plan for a long time. We have had to be careful in the operation of the plan to see that any suggestions made by the foreman were not of the type that would be an infringement either on the quality of the product or on the rates of the employees working in the department. I do not mean that the foremen cannot submit a labor saving idea, but at least not one which just arbitrarily lowers existing rates in order to secure the bonus for themselves. We have not had any bad reaction because we have watched it very carefully to be sure when suggestions were made that they were properly O.K.'d before they were put into operation.

WILL DOLL (*Auditor and Office Manager, Wardway Paint Works, Chicago Heights, Ill.*): I would like to ask whether or not, under your salary adjustment plan, excess earnings have ever assumed such a high level that salary employees became dissatisfied and did not feel they were getting their share?

MR. PERRY: I will not try to develop the history of this plan. It has been in effect for quite a long time. I will say this: It started out to be 90 and 100 per cent instead of 80 and 120 per cent. I do not believe you can set any particular level and feel that it is going to be good for all time. We just cannot gauge economic conditions that well. It may be that at some future time we will be paying 100 per cent minimum and 130 per cent maximum. You must give the employee as a minimum enough monthly wage so that he can live well. The maximum must be set at a point where there results a fair division of profit between stockholders and employees. So far we have found that when we were paying special dividends, we were also paying the maximum salaries.

EDGAR M. KLUGE (*Cost Accountant, Anheuser Busch, Inc., St. Louis, Mo.*): In Exhibit 3, you have boiler and power expense.

In our plant we have a considerable cost for such service departments. In setting up your budget allowances do you recognize seasonal variations?

MR. PERRY: Yes, we do. This figure which is set up in Exhibit 1 is the average for the year. If you were to look at the form pertaining to the boiler or power or even the maintenance department, you would see various schedules which would show seasonal allowances. Coal, for instance, averages from January to March, \$1,000 per month, March to June, \$800 a month, and for the summer months perhaps \$700 a month. That is the way in which we handle seasonal variations in the budgets. From a standard point of view, of course, the average is all we care about.

CHAIRMAN MOORE: We have time for just one more question.

C. W. TUCKER (*Controller, H. P. Hood & Sons, Inc., Boston, Mass.*): I should like to ask Mr. Perry a question pertaining to Exhibit 2. In connection with your deliberations for the purpose of determining the various levels of sales values, to what extent do you give consideration to the price levels which may be in effect at the time the various levels are reached? Have you ever made use of any such measuring stick as the so-called "unit" or "point" in connection with your endeavors to control labor and overhead costs?

MR. PERRY: The first part of your question has to do with the determination of the sales values at the various levels of production. Our current production basis which I referred to in the first part of the Master Budget Book is in sufficient detail so that we can arrive at a fairly good sales value for 100 per cent production by applying our price list to the units shown. We do not, in these forecast statements, change the basis of the sales figure at the various levels of production. They are all figured on the same price basis. I want to emphasize that this is a forecast profit and loss sheet and is to be used as such. No one can forecast and try to interpret what the economic conditions are going to be when you happen to be in a particular level of production. In this particular picture we use one set of prices that everyone looking at the chart knows to be in effect. If the prices are changed, then we construct another chart using the new values. Does that answer your question?

MR. TUCKER: In other words, Mr. Perry, you do give consideration to the various gross margins you expect to realize on individual products?

MR. PERRY: Yes, we do recognize the gross profit margins that we expect on the individual products.

MR. TUCKER: I do not believe that Mr. Perry has answered the second part of my question with respect to utilization of the "point" or "unit," so-called, in the control of labor and overhead costs.

MR. PERRY: At the present time we do not use any point or unit system for the control of our labor costs.

CHAIRMAN MOORE: The only reason we have to close at this time is that these wild and woolly Westerners gave us particular instructions to close this session at four-thirty and we have run fifteen minutes over our allotment now.

I want to express my personal appreciation to all of you for the splendid co-operation and help that you have given me in putting these sessions across today. I know you will join with me in thanking Dean Jackson and Mr. Perry for their very fine papers.

. . . The meeting adjourned at four-forty-five o'clock . . .

SESSION III

**APPLICATION OF COST
CONTROL TO MATERIALS**

WEDNESDAY MORNING, JUNE 22, 1938

E. A. AUSTIN, Auditor, Hammermill Paper Company,
Erie, Pa., *Chairman*

N. M. CARTMELL has been engaged in private and consulting management engineering for the past twenty-three years. During this period, he has been with the Winchester Repeating Arms Company; C. E. Knoeppel and Company; the Celluloid Company, as Controller; Corporate Associates, Inc., as Executive Vice President; and McKinsey, Wellington, and Company. Since 1915, he has been a part-time lecturer in the New York University School of Commerce, Department of Management, and is now lecturing on "Production Control and Time Study." He is a graduate of Wittenberg College (1914) of Springfield, Ohio, the U. S. Navy Steam Engineering School of Stevens Institute, and holds an M.A. degree in economics from New York University. A number of his writings have been published, including the book, *Stores Materials Control*, published by Ronald Press in 1922. Mr. Cartmell is a member of the New York Chapter of the N.A.C.A., and of the American Management Association.

WALTER C. SKUCE graduated from the Ottawa Collegiate Institute, Ottawa, Canada, in 1922, and immediately entered the Cost Department of the Schenectady plant of the General Electric Company. While employed in this department, he entered and graduated from the General Electric Business Training Course. In 1933, he was transferred to the Manager's Office, specializing in manufacturing methods, spoilage and waste elimination and cost reduction activities. In 1935, he was made Supervisor of Inventory Control of the Schenectady Plant and has recently been made Supervisor of Inventory Control for the entire company.

APPLICATION OF COST CONTROL TO MATERIALS

PRESIDENT MARSH: Yesterday we covered the broad principles and fundamentals of cost control. Today we are going into more detailed applications. This morning we are going to cover the control of materials and this afternoon the control of labor and overhead.

The Chairman of the sessions today is Mr. E. A. Austin of Erie, Pennsylvania. Mr. Austin was the second President of the Erie Chapter. He has served as National Director. He is a C.P.A. and is Auditor of the Hammermill Paper Company. I take pleasure now in turning the meeting over to my friend, Emory Austin.

CHAIRMAN AUSTIN: You have heard Bill Marsh's remarks about yesterday's sessions. I should like to go back to last year's conference and remind you that our general theme last year was "The Fundamentals of Cost Accounting." I think it would not be a bad idea if, when we go home, we took up the old Year Book and looked over what we covered, and we would see the connection with this year's session.

We were then faced with a very serious labor situation and with problems of mounting costs and increasing prices. Today we are faced with an entirely different situation, as you know. In the labor field, we have unemployment. We face the economic problem of declining prices and the accounting and management problems of decreasing margins. So our theme, "Control of Cost," with emphasis on cost reduction, seems timely. And yet I wonder if we accountants do not sometimes miss our opportunities and fail in our duties in assisting management in interpreting these business cycles and economic laws. I wonder if we were not partly responsible, along with management, for creating a false buying and inventory campaign last year. Perhaps we should dust off our old college texts on economics.

This morning we continue our general theme of cost control and take up the subject of "Application of Cost Control to Materials." Our first speaker will develop the phase of this subject dealing with "The Control of Inventory Investments."

It is my pleasure to introduce our first speaker, Mr. N. M. Cartmell of McKinsey, Wellington and Company, New York City.

THE CONTROL OF INVENTORY INVESTMENTS

N. M. CARTMELL

McKinsey, Wellington and Company,
New York, N. Y.

THE general theme of this conference is "The Control of Industrial Costs," and it is particularly fitting that the first of our sessions on the application of control to the three elements of costs should be devoted to materials. The control of materials and inventories is more difficult in practically every industry than the control of labor, overhead, machines or any other item of production or cost. Furthermore, inventory control is closely related to and can assist in solving many other problems, for example, the current labor problems.

"Inventory investment" is a term expressing the value of the quantities of materials in inventory. "The Control of Inventory Investments" is defined as a means to minimize the carrying costs of inventories and the losses from deterioration and obsolescence, to reduce the costs of manufacture and to facilitate manufacture and sales.

Sound control can be exercised only through the control of quantities. Accordingly, emphasis will be placed upon quantities as it was in the article in the *N.A.C.A. Bulletin* of May 15, 1938, entitled "Practical Application of Inventory Control Methods," which I had the pleasure of preparing. Repetition of material in that *Bulletin* in this paper will be confined to principles and to illustrations of control methods.

Inventory Control Problems

We are now witnessing another revival of the interest in inventory and materials control that accompanies every depression. For example, on May 12 at a convention of the Tanners' Council of America, the President, Mr. Carl F. Danner, who is also President of the American Hide and Leather Company, reminded the tanners that inventory control was of paramount importance to that industry. The general lack of adequate control was recently the subject of an interesting and, I hope, significant pronouncement by the President of the United States.

It is a unique industrial corporation that does not have inventory

problems. Probably every corporation represented in this room has one, two or all of the three principal types of problems:

1. Excessive inventories: Perhaps they are also badly out of balance and in part non-salable. Probably at least half of you realize that you have this problem now. Many of you always have it without knowing it. Comparatively few managements can recognize it during normal times because they know of no measuring stick, except previous experience, of what their inventories should be.

2. Inadequate accounting for materials: Many of you who recognize this problem, know how the accounting should be done, but your superiors will not approve the methods which you recommend.

3. Excessive manufacturing costs of products because of the materials: You may be accounting adequately for the materials used and the recognized wastes, but you believe that there must be unnecessary costs and wastes because competitors consistently underprice you or earn more profits. Probably you can see some of these wastes but cannot reflect them *as such* in your accounting data because those who are responsible claim that they cannot be avoided and must be included in the manufacturing cost standard. On the other hand, these costs may be too high because more costly materials are used than necessary, or the kinds of materials and parts may require higher manufacturing labor costs than necessary. Management faced with this type of problem is often unable to recognize existing conditions because they have had no experience to compare with present practice.

Let us frankly acknowledge the important reason why such problems arise or continue. The detection of faulty conditions within a business is usually dependent upon the management's experience, and the time devoted to the critical analysis and the improvement of internal affairs. Correction can be initiated only if the conditions are recognized, and this usually occurs when they are acute. I hope the day will arrive when the heads of businesses, who periodically go to their doctors for physical examinations to prevent or correct physical problems, will be as energetic in examining their business organizations to prevent or correct faults. Both types of organizations—the body and the business—are subject to the same ills—high or low blood pressure, anemia, and even cancer—and too frequently the materials of diet or of manufacture are at fault.

In this connection, I would add one thought to those so ably presented yesterday, because it is pertinent to this subject. In each industry, only *one* manufacturer is the most efficient and has the lowest costs. All others have higher costs than the one most effective

unit; some are very ineffective with high costs in serious need of control. Furthermore, all too frequently, the high cost producers are those who are complaining about "low" prices in the industry, although their complaints and their problems could be solved by an adequate control of their operating costs.

Inventories are accumulated for five reasons:

1. In order that materials will be on hand for production to proceed in an orderly manner and that shipments may be made to customers on short notice.
2. As the result of purchasing or processing materials in quantities sufficient to attain the optimum costs.
3. As the result of definite long-term policies and plans for such reasons as increasing the output per production unit or dollar of investment in fixed assets, decreasing labor turnover, and increasing the continuity of employment.
4. In anticipation of periods of difficulty in obtaining materials, as occur when there are strikes in suppliers' plants or when war is threatened. This is a service reason.
5. In anticipation of higher prices or costs because of expected increases in labor rates or raw material prices. This may be pure speculation or it may be insurance against loss from higher costs without accompanying higher selling prices.

All of these reasons for accumulating inventories are legitimate and logical and, when used with discretion, are sound, but the limitations governing good judgment must be recognized.

Practically all inventory and other business problems are the results of human errors or mistakes in judgment. For example, no business ever planned deliberately and intentionally to build up an excessive inventory of either raw materials or finished products. When the materials in an excessive inventory were ordered, there was no expectation that the inventory would become excessive or out of balance; it becomes so only in the course of time and in the light of conditions of the future. Errors of judgment as applied to inventories, result from:

1. Unsound forecasts of future business conditions, and particularly of commodity prices. These errors are especially serious when they result in disastrous losses of large sums from large purchases of basic raw materials, regardless of whether they are bought for service, insurance or speculative reasons.
2. Reliance upon insufficient and uncoordinated data. These errors are large in number and frequently result in huge losses. They

usually result from inadequate procedures, which cause is also a contributing factor to the first group of errors which arise from unsound forecasts.

We are here because we are interested in ways and means to minimize these errors in the future so that we can reduce the losses and improve the general effectiveness of our operations.

There are three obvious methods of accomplishing this:

1. By establishing sound policies.
2. By installing adequate procedures so as to provide a sound basis for executing policies and exercising judgments.
3. By teaching those who exercise judgment the dividing line between sound practice and speculation.

Four Vital Controls

No policies or procedures are more difficult to establish or require more technical knowledge and deliberation than those pertaining to inventories. Furthermore, inventory control is handled less effectively in most corporations than any other activity and management is just as adverse to this criticism as to any other. Inventory control cannot be established as an isolated function. It must be co-ordinated with budgetary control, sales control and production control. The position of inventory control will be clarified if we define these related functions:

1. The primary purpose of *budgetary control* is to plan all operations so as to secure the maximum profit from the minimum investment in working and fixed capital.
2. The primary purpose of *sales control* is to plan the sales activities so as to exploit the potentials of selling the maximum quantity of the most profitable products at the lowest possible selling cost.
3. The primary purpose of *production control* is to secure the maximum production of products of the standard quality at the lowest cost and at the right time.
4. The primary purpose of *inventory control* is to maintain minimum inventories consistent with sales requirements, manufacturing programs, and the policies of the company, to assure a proper balance of parts and raw material inventories with respect to assembly and parts manufacturing requirements, and to serve as the basis for sound purchasing.

When these four controls are adequate, the inventories will conform with the general policies of the company, and will permit prompt service to customers, orderly production at a reasonable cost and the

minimum losses from material and labor variances and from obsolescence.

Initial Steps to Establishing Inventory Control

In establishing adequate control, we must study our organization, personnel, policies and procedures, all of which are involved. Without attempting to define the problem in terms of only one of these considerations, and basing our discussion upon an established manufacturing enterprise, I suggest the following initial steps as essential:

1. The standardization of materials, which frequently is the key to successful control. While standardization begins with and is based upon the finished products, it cannot be divorced from considerations of raw materials and component parts, and of manufacturing operations and processes. The aim is to secure the greatest flexibility possible in the inventories and the optimum approach to mass production of all parts and to mass sale of all products. Practically every enterprise has much to do in the way of standardization.

2. The establishment of records which list the standard quantities and kinds of raw materials, component parts and sub-assembly requirements, as well as labor and equipment requirements, for manufacturing each finished product. They should also record the standard allowances for scrap or other wastage, and other factors, such as standard manufacturing lot sizes and minimum economic ordering quantities. These records are of vital importance to the production control activities and in co-ordinating procurement orders and inventories with demands for finished products. Revisions should be made as soon as any change is authorized in the design of a product or in the method of manufacture. Some concerns do not have such records, but most do have them, although they are not always complete, up-to-date or distributed as widely as desirable.

3. The establishment of adequate physical handling and storage facilities. Of all the essential steps in the adequate control of inventories, this one is recognized most universally, although many plants are deficient and large losses result from deterioration, damage and even theft. On the other hand, many plants are incurring unnecessary storage and handling costs because their methods are too elaborate. Any arrangement is adequate that recognizes convenience of location and reasonable protection against any kind of loss.

There are no by-passes to these steps, although some methods are much simpler than others.

Essential Control Procedures

Having outlined the basic initial steps for establishing our control of inventories, and assuming that adequate procedures will be established for continuing them, we now consider the steps essential in maintaining the day-to-day controls. These steps are discussed in terms of procedures, but with references to the appropriate organization, personnel and policies. Procedures must be established for:

1. Forecasting the long-term sales demand for finished products.
2. Planning the long-term production program based upon the long-term sales forecast.
3. Forecasting the short-term demand for specific products.
4. Originating and scheduling procurement orders for finished products and their related parts and raw materials.
5. Recording quantitatively and financially all transactions affecting materials so as to determine:
 - (a) The value of inventories for balance sheets.
 - (b) The cost of sales and other expenses for profit and loss statements.
 - (c) The variances between standard and actual costs of and for materials.

These inventory control procedures could be included in a discussion of the related essential controls because of their close relationship, and because each will reflect financial, sales, engineering, purchasing, personnel, and manufacturing policies.

Forecasts Are Basic Needs

Every business does *some* forecasting of both the long-term and short-term types, but usually it is neither orderly nor sufficiently comprehensive to effect satisfactory results. Furthermore, the forecasters usually fail to record their data in writing. All businesses, even those manufacturing special or style products, can be planned at least in terms of total business to be done. Planning for the manufacture of standardized products is quite simple, although many such manufacturers still question the advisability of careful quantitative forecasting and planning. Although it has been years, yes, decades, since we began discussing budgetary control and standard costs, in many cases managements still regard them as applicable only to someone else's business.

The long-term sales and production forecasts are the *first* elements of day-to-day control of inventory investments. Upon them will be

based most of our manufacturing, sales and financial policies. Furthermore, success in earning profits is largely dependent upon long-term planning. The period to be forecast will vary according to the business and the industry, and perhaps a year will be the average. The forecasts should be expressed in terms of quantities of a denominator common to all products, such as dozens, pounds or man-hours. The use of dollars as a denominator is to be avoided when forecasting for control purposes, but afterwards when the quantities are translated into dollars, accurate figures will be obtained for the budgets.

Long-Term Sales Forecast

For simplicity, these forecasts are illustrated in terms of the manufacture of shirts, but the exhibits which follow are not exactly like those used in the industry because they have been modified in order to serve as general illustrations. Furthermore, *no short cuts are shown*. Contrary to what you may guess, the forecasting or planning of shirt manufacture is not simple, but the manufacturers could not exist without detailed forecasts. While shirts are quite standardized as to styles, and to some extent as to patterns and colors, sales from season to season vary greatly as to patterns and even as to styles. For example, a short time ago, French cuffs on shirts to be worn with separate stiff white collars were the predominant style. Try to buy a shirt today with French cuffs and note the meager selection of patterns displayed. Furthermore, practically all of you are wearing shirts with attached or soft collars, and very few stiff white collars are visible.

Exhibit 1 is a long-term sales forecast for a period of one year. It should be revised at least quarterly, when an additional quarter should be included if each forecast is to cover one year. The revision should take cognizance of happenings since the last revision, as well as current prospects for the coming period. The exhibit is for one state, the geographical basis being the best for determining the sales potentials and supplying the base for the sales control in each area. The first tabulation is for shipments by classes of customers. To the right are the forecasts for individual months which, like the annual figures, should be translated into dollars for the budgets. The second tabulation is by classes of shirts and the total equals the first total. Additional tabulations on other bases, such as grades or price ranges, would also be useful and assist in accuracy.

The data used in compiling the forecast are of many kinds, each of which requires individual consideration. For example, the trend

EXHIBIT 1

LONG-TERM SALES FORECAST FOR STATE OF NEW YORK
 Period—July 1, 1938, to June 30, 1939
 (Shipments in dozens)

Class	Shipments during preceding 12 months Dollars	Forecast for next 12 months Dollars	Forecast of Shipments by Months													
			July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.				
By Classes of Customers																
Dept. Stores	8,000	\$ 96,000	7,500	\$ 90,000	375	425	600	750	900	450	480	900	820	600	450	
Chain Stores	2,750	33,000	2,500	30,000	125	145	200	250	300	250	150	160	300	270	200	150
Ind. Retailers	11,000	143,000	10,000	130,000	500	580	800	1,000	1,200	1,000	600	630	1,200	1,080	800	600
TOTAL	21,750	\$272,000	20,000	\$250,000	1,000	1,150	1,600	2,000	2,400	2,000	1,200	1,280	2,400	2,170	1,600	1,200
By Classes of Shirts																
Whites	4,000	\$ 48,000	3,800	\$ 45,600	190	219	304	380	456	380	228	243	456	412	304	228
Blues	6,000	72,000	5,500	66,000	275	316	440	550	650	550	330	352	660	597	440	330
Fancies	11,000	137,500	10,000	125,000	520	565	781	970	1,134	945	612	635	1,234	1,141	836	627
Dress	750	14,500	700	13,400	15	50	75	100	150	125	30	50	50	20	20	15
TOTAL	21,750	\$272,000	20,000	\$250,000	1,000	1,150	1,600	2,000	2,400	2,000	1,200	1,280	2,400	2,170	1,600	1,200

in economic conditions is important, as well as the status of stocks on dealers' shelves and in consumers' hands, the latter being of paramount importance because dealers do not move their stocks when the consumers have built up their supplies. Too much reliance must not be placed upon the quantities sold in previous years. Style trends are very important, such as the shift from the stiff collar which quickly wore holes in our shirts and increased the number we bought annually.

Responsibility for Long-Term Sales Forecast

Such a forecast should be compiled by the sales manager personally, assisted by the production control manager in order that the forecast may be practical from the manufacturing standpoint, and by the controller who should be watching the general business outlook in order that the production and sales requirements will produce the optimum profits without straining the financial resources. Of course, the forecast must receive the final approval of the president and the general manager.

The sales manager should have the primary responsibility because:

1. He will have difficulty in explaining any failure to meet a forecast for which he is responsible.
2. To forecast, he must analyze the sales potentials for each class of product in each sales territory. Thus he will obtain personal knowledge of such possibilities, and can plan the sales activity in definite terms of individual cities, prospective customers and so on.
3. He will learn and appreciate the effect upon the business of the relative profitableness of the various classes of products in time to stress or put pressure behind the sales of the profitable products.

Note that I assign the primary responsibility to the sales manager. Many accountants and others believe that a sales manager is incapable of making a sound forecast. At a recent meeting of accounting executives, it was found that over half of those operating budgetary control have two budgets, one for the sales manager based upon his forecast, and a second official budget, just as though the sales manager did not belong to the same organization. Of course, salesmen's quotas for various reasons may total more than the sales budget total, but that should not affect the budget. I have seen many ridiculously optimistic sales forecasts by sales managers, but they have served only to strengthen my conviction of the need for the training of sales managers in the understanding of control work. I have never seen a really bad forecast based upon a detailed analysis as just

suggested, nor have I seen many sales managers do a sound sales control job without that analysis. Few sales managers, as yet, believe in such an analysis and are willing to give their time to it, but I believe that if we do our part the sales managers like the factory managers will seek our assistance.

Long-Term Production Forecast

When the long-term sales forecast has been approved by the management it should be resolved into a long-term production forecast as the basis for all important inventory and production policies. The production manager should be responsible for preparing this forecast, which should be developed for each class of products individually and in the following manner as illustrated by Exhibit 2:

1. Translate the sales forecast of monthly shipments, as shown on Exhibit 1, into terms of the months in which the products must be manufactured in order to meet shipping requirements. Usually the forecast of shipments is merely advanced by the manufacturing time

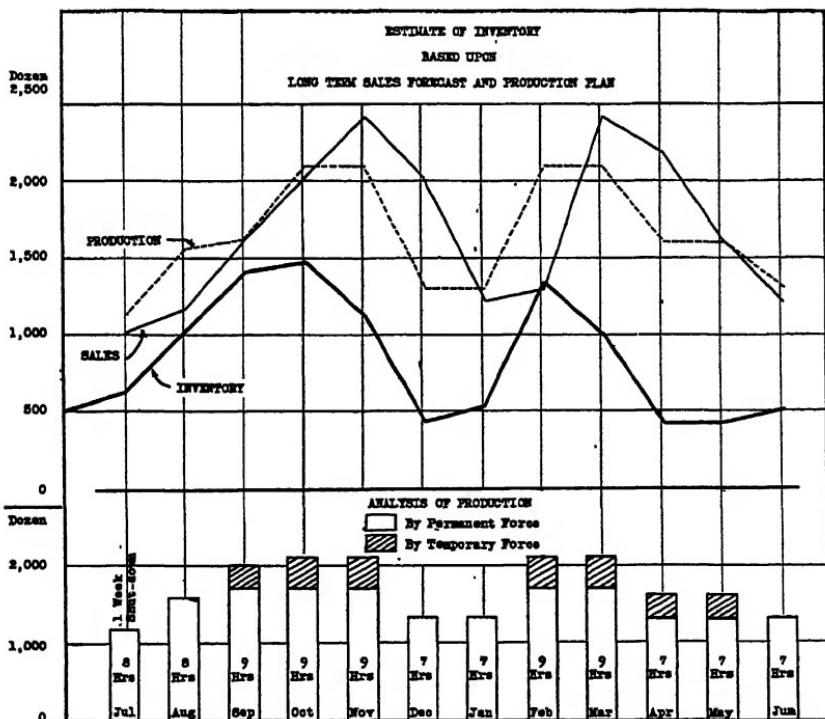


EXHIBIT 2

interval plus some factor of safety. For example, if one month were required normally to produce shirts, exclusive of the time for obtaining materials and completing clerical work, the forecast of work to be started during June will be the shipping forecast for July.

2. Endeavor to plan the rate of production so as to secure as level or even a rate as possible. If production were planned exactly in accordance with the shipping requirements, all peaks and valleys of the sales curve would be reflected. While in some businesses production may be leveled arbitrarily almost to a straight line, it is usually neither desirable nor possible. However, it can be leveled moderately and on a very desirable basis by such measures as concentrating factory vacations within the dull season, working the minimum number of hours during the dull season and the maximum number during the busy season, and refraining from replacing members of the working force who resign unless necessary.

3. This modified production program should then be reviewed in the light of the present inventory of products and any other pertinent factors. For example, further leveling of production might be attained at times by permitting the inventory to become very low.

Exhibit 2 illustrates such a development for the control of the inventory investment in finished products. The light solid line represents the forecast of monthly shipments as developed in Exhibit 1. The broken line represents the long-term leveled production program, determined as just described. The resulting inventory balances are shown by the heavy solid line. The leveled production program is also represented by the bar chart at the bottom of the exhibit. The bars indicate the production by the permanent force and by the temporary force. While there is considerable curve in this leveled production program, note the practical considerations and limitations established for this example:

1. While the permanent force is constant in number, its production is varied considerably by varying the hours per week. The total hours for the year average forty per week, the maximum possible under a union contract which also established nine hours as the maximum per day.

2. While a larger permanent force would eliminate the temporary force and thus permit further leveling of the total production curve, it is not practical because the inventory would peak earlier causing financial difficulties, and because the manufacturer minimizes inventory close-outs at the end of the selling season by keeping production as close as practicable to orders. Furthermore, an adequate supply

of satisfactory workers is available for recruiting the temporary force, and the production facilities exist to accommodate them.

Thus a definite sales, production and inventory program has been established which is the optimum for the control of inventory investment and all other considerations.

Production control and inventory control now begin. For instance, the quantities of products to be manufactured in each month can be translated through formulae into quantities of important raw materials and appropriate purchase contracts placed for future delivery. Furthermore, additional accurate budget figures are now available by translating the quantities to be produced and the resulting inventory balances into dollars.

Short-Term Sales Forecast

The primary purpose of the short-term sales forecast is the orderly initiation of sound production orders for manufacturing specific products.

The production control manager should have the primary responsibility, assisted by the sales manager and controller. The sales manager must advise upon sales trends for individual products, and upon plans to discontinue certain styles or numbers and to create new styles and numbers. The controller's function is to check the effects upon the financial program.

The procedure for forecasting is comparatively simple, and is based upon the long-term production forecast. Each class of shirts (the second tabulation in Exhibit 1) is comprised of many individual styles and patterns. Short-term forecasts are made for each of those products. For convenience, the appropriate details should be recorded on the stock records for the products.

A stock record illustrating this procedure is shown in Exhibit 3. Note that this form provides for "cumulative" and not "balance" quantities. While this type of record is usually the best for all stock record purposes, it is essential for this control procedure.

The heading contains a few of the essential reference data. The most important are sales class, yardage of material required per dozen shirts, the manufacturing time and the "minimum economic ordering quantity." This term is defined as the smallest quantity which can be manufactured (or purchased) without an important sacrifice in cost or price. It corresponds roughly with the old term "maximum," but it is worded to imply that any larger amount may be ordered that is not excessive, considering such factors as the time that the shirts

may remain in inventory and the possibilities of their becoming obsolete. It is subject to revision at any time with changes in conditions, such as a decrease in demand which would result in an excessive inventory.

PRODUCT--ShirtsCLASS--FancySTYLE NO.-Y1531PIECE GOODS PER DOZEN--23 YardsMINIMUM ECONOMIC ORDERING QUANTITY--30ST'D HOURS PER DOZEN--11ORDERING POINT--30UNITS--DozenST'D CUTTING SCALE--BXTIME REQUIRED TO MAKE--2 Weeks

SHORT-TERM FORECAST			SHIPPING ORDERS			PRODUCTION ORDERED			PRODUCED			SHIPPED						
Date	Month	Quan.	Total	Date	Month	Quan.	Total	Date	Order No.	Start Date	Quan.	Total	Date	Ref. No.	Quan.	Total		
6/25	June	260	25	7/10	July	250	25	6/25	1224	7/15	80	7/12	1224	25	7/24	162	25	
7/25	"	550	20	7/25	"	260	51	"	"	7/20	700	150	"	55	80	7/26	171	37
7/31	"	650	40	7/25	"	270	79	"	"	"	"	"	"	"	"	"	"	
"	"	620	87	7/31	"	96	87	"	"	"	"	"	"	"	"	"	"	
8/15	Aug.	560	440	7/10	Aug.	210	82	7/25	1245	8/5	500	200	8/10	1224	20	110	870	60
7/25	"	480	440	7/25	"	220	121	"	"	"	"	"	8/25	50	150	8/25	10	132
7/31	"	570	440	8/10	"	160	156	"	"	"	"	"	8/22	50	200	"	"	"
8/25	"	500	167	8/26	"	80	164	"	"	"	"	"	"	"	"	"	"	"
6/25	Sept.	580	220	7/10	Sept.	140	98	7/25	1245	7/25	1000	800	8/10	1224	20	110	870	60
7/25	"	1000	480	7/25	"	110	150	7/25	1245	7/25	3000	2000	8/25	50	150	8/25	10	132
7/31	"	600	477	8/10	"	150	198	8/25	1245	8/25	1000	900	"	"	"	"	"	"
8/25	"	920	287	8/25	"	210	227	"	"	"	"	"	"	"	"	"	"	"
6/25	Oct.	1000	320	8/25	Oct.	430	240	8/25	1445	10/15	1000	500	"	"	"	"	"	"
7/25	"	400	400	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
7/31	"	450	377	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
8/25	"	920	247	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
6/25	Nov.	1000	400	8/25	Nov.	70	49	"	"	"	"	"	"	"	"	"	"	"
7/25	"	450	450	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
7/31	"	450	450	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
8/25	"	470	470	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
6/25	Dec.	600	625	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
7/25	"	570	577	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
7/31	"	570	577	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
8/25	"	540	544	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

EXHIBIT 3

For simplicity, a new number in the line is illustrated and initially no orders or inventory are on hand. The entries for quantities produced and shipped are similar to those on any stock record and will receive no further reference. The other entries can be traced in

sequence by the small key letters in the quantity columns, each letter denoting the entries made simultaneously. We do not have time to trace all entries, but the high spots are:

A—A reserve quantity of 25 dozen is provided as deliberate protection against actual sales exceeding forecast sales. It represents the maximum quantity we desire to have in inventory for *that* reason. We would not need to provide this reserve if we could forecast with mathematical accuracy, or if we were unwilling to speculate to that extent on this new number. The reserve will be included in all considerations until it is cancelled.

B—The initial short term forecast. The usual minimum period would be the manufacturing period (not less than one month) plus an additional month for clerical work, the securing of material and similar work. These forecasts should be made and revised just before the first of each month, though in peak seasons it may be advisable to do so more frequently.

In this example, the period forecast is the period that the shirt (a fancy item) is expected to remain in the line. On June 25, forecasts are made for each of the succeeding six months: 55 dozen for July delivery, a cumulative total of 80 including the reserve quantity; 60 dozen for August delivery, a cumulative total of 140; and so on with a final cumulative total of 525 dozen (shown opposite the June 25 entry for December delivery).

C—The "Production Ordered" column shows order #1234, initiated to cover the first two months' requirements, 80 dozen for July 25 delivery to stock and 70 dozen for August 10 delivery to stock, a total of 150 dozen or three even lots of 50 dozen each. Note that production is split as to delivery date in observance of the principle that manufacture should be delayed as long as practical. The cumulative total of the production ordered column exceeds the "forecast" total as of the same date by 10 dozen which is a small additional speculation but probably safe in view of the later sales expectations.

This routine is followed for each shirt in that class, namely, the fancies. Then the quantities on the resulting orders are added in terms of the common denominator, dozens, and compared with that month's long-term production forecast for *that one* class, which should be based upon the sales forecast shown in Exhibit 1 and developed upon the plan of Exhibit 2. The total of the production orders will not equal the long-term production forecast. The next step is to balance them. If the ordered total is the higher, as is usual during busy seasons, the individual orders are reviewed and the

quantities decreased to the extent necessary. Of course, adjustments are made first upon the orders for patterns which have the least sales possibilities, and hence are most likely to be slow moving and become obsolete.

If the orders total less than the long-term production forecast, individual orders are increased, the largest adjustments being made upon the orders for shirts most likely to sell. Of course, adjusting entries would be made in the production ordered column of the appropriate stock records. By this step we have insured that production will be balanced and co-ordinated with expected needs.

Notice that the order total is adjusted to the long-term forecast, because the latter governs the amount to be produced. Furthermore, it is usually the more accurate, although occasionally during the intervals between revision a change in trend will be shown by the short-term forecasts. Of course, if there is any doubt about the accuracy at that date of either forecast, it can be checked very quickly for taking corrective and appropriate action immediately, if necessary.

D—Shipping orders as received are entered individually or accumulated for periodic entry in the shipping orders column according to delivery months as shown. Cumulative totals are maintained.

F—After the shipping order entries of July 25 (E), the forecasts are revised to reflect the orders received and the current sales outlook for this pattern and style. In this illustration, sales look good and the forecasts for July, August and September are increased, all cumulative totals being changed accordingly and the previous entries and totals cancelled by drawing a line through them so that no confusion will exist later as to which is the latest total.

G—On July 25, a production order for 150 dozen is written for split deliveries on two dates. A second order for 200 dozen for September 25 delivery is also written. Thus the total quantity has been ordered which is expected to be sold before this number is discontinued. This optimism regarding the popularity of the number is not sound, as seen later.

When all of the fancy numbers have been reviewed, the previously described step is taken for balancing orders against long-term forecasts.

Notice that the first delivery on order #1345 was scheduled for August, one month after the order was written instead of two months. In spite of careful planning, such rush deliveries often will be required. To maintain the balance between production plans and schedules (unless our production plan is to be changed) we must

delay the production on some order written in June for August delivery in a quantity equal to the rush order. Sometimes the reverse is desirable, as illustrated by entry (M) postponing part of the September delivery to October. In that case, a compensating quantity of an order for October delivery would be rescheduled to September. Of course, all such changes are handled as totals rather than by matching the quantity of one order with another.

There is time for only a few more references to the entries.

I—On July 31, the final entry is made of shipping orders for July delivery and the forecast for July is adjusted to the actual sales.

L—Note that forecasts as of August 25 for August, September, and October shipments have been decreased because the optimism of the previous forecast was not justified. For this reason, production of 100 dozen on order #1445 was postponed to October 15 (entry M).

Under this plan we can be quite certain that the quantities produced will be adequate and will be produced to meet shipping requirements without being excessive. In fact, if we could forecast with mathematical accuracy, finished product inventories at the end of each month would be exactly equal to the production authorized in excess of the short-term forecasts. Of course, such accuracy is impossible, but the maximum month-end inventory should not be more than the quantity resulting from providing reserve stocks, leveling production, or ordering the minimum economic ordering quantities, all of which will have resulted from *deliberate* judgment.

Scheduling Procurement Orders

The dates on which the production orders were scheduled for completion, were based upon attaining an adequate stock just prior to shipping requirements. This step alone, however, is not sufficient to insure delivery on time. Each production order should also be scheduled as to the date to start, and co-ordinated with the inventories and procurement orders for component parts and raw materials, particularly because, through the standardization program, the application of each material (and part) to a number of products has been increased to the optimum. For example, the same pattern of piece goods might be used for six styles of shirts, and our total requirements must be known in order to procure all at one time. The tools for this purpose are the stock records for the materials which are similar to the finished product record in Exhibit 3, but with these changes in the columnar headings:

Headings of Stock Records for

<i>Finished Products</i>	<i>Material and Parts</i>
Short Term Forecast	Short Term Forecast
Shipping Orders	Product Production Orders
Production Ordered	Purchase Orders
Produced	Received
Shipped	Issued

First, each production order should be matched with the previously described bills of materials for the specified product, and computations made of the required quantity of materials, including standard allowances for waste, etc. The quantities needed are entered in the second group of columns of the appropriate records with notations as to dates when the orders are to be started. When all entries are made, our accumulated needs are compared with the cumulative total of the purchase order column, and purchase orders are written for the deficiencies, preferably for the minimum economic ordering quantities. Deliveries are scheduled so that the material will be available when needed for production. If the quantity ordered is in excess of the actual requirements, it is important that the excess be reasonable and be scheduled for delivery on dates which will minimize the carrying costs.

Sometimes it is worth while to translate the short-term forecasts for shipments into terms of materials for placing blanket contracts. For example, the first short-term forecasts on Exhibit 3 were made by months for six months. These might be translated into yardage of materials needed for the six months.

By this complete procedure, we have assembled all of our requirements for materials (or parts) in order that we may handle the minimum number of procurement orders and purchase or manufacture in the largest practical quantities, and that production may proceed in the most orderly manner possible. Moreover, this control will discourage buying in excess of needs that are directly co-ordinated with the sales and service requirements, and will discourage the burdensome costs of carrying inventories in excess of those built up as a result of co-ordination, deliberation and judgment.

It will be interesting to each of you:

1. To calculate the necessary increase in production of raw materials if there should be a 25 per cent increase in consumption of the products you produce, and if your own inventory policy were to be

followed by each unit in the chain from the raw material producers to the retail distributor. Many supposedly sound plans require an increase in raw material production equal to several times the rate of increase in the finished product consumption.

2. To make a similar calculation based upon the policies and procedures which I have just presented.

Problems of Advance Buying

The installation of adequate control procedures and sound interpretation of the data determined by the procedures is not sufficient, however, to keep the inventory investment under control. We still must cope with deliberate advance buying which too often is greatly in excess of immediate requirements and is encouraged by external conditions. I have stated that such buying may logically occur: first, as insurance that adequate stocks of materials of the right qualities will be available to maintain service to customers; and second, as insurance against product costs rising faster than selling prices. Buying in excess of those quantities is usually dangerous and may produce serious financial and other problems.

The general buying policy of a year ago cannot be characterized as having been sound or even conservative. The Cleveland Trust Company's *Business Bulletin* for January 15, 1938, summarized that situation as follows:

The over-rapid building up of the inventories of corporations late in 1936, and in the spring and summer of last year, appears to have been *one* of the important causes of this present business slump. Prices of raw materials were rising, the race for armaments was under way abroad, and renewed threats of approaching inflation were under discussion. The situation was further complicated by prospects for serious labor troubles. Under these conditions corporations increased their forward commitments, and laid in greater stocks of fuel, supplies, and materials than they usually carried.

Then last spring the authorities at Washington gave out warnings that commodity prices were too high, and were advancing too rapidly. The result was to check the rate of current accumulation, but there still remained in force the forward commitments which continued to bring in more goods for storage. When the stock market broke last summer, and business activity slowed down, hundreds of corporations found themselves holding such large stocks of goods and materials that they could curtail or suspend production and still continue to fill orders. That explains in part the sudden drop in industrial output.

I am convinced that the data which have been compiled since these comments were published last January, definitely indicate that the buying spree was *the* principal cause of this depression. Too

many companies and persons had made such large purchases in advance of actual needs that they would or could buy no more. Business was faced by deliberate efforts to push up prices to the levels of 1926. It appeared that these efforts would be successful, and most companies, including big businesses advised by their economists, believed that prudent policy dictated large commitments and inventories. You and I, as individuals, were encouraged to buy clothing, automobiles and other items because higher prices were forecast. Most of us who could, did respond somewhat and bought moderately of those things which we thought worth the price. Then, when we had stocked up on finished goods and the manufacturers had stocked up on raw materials, the buying demand collapsed while supply continued unabated. Finished products moved no further than the warehouse, and production soon had to stop.

If you think this is an exaggeration, consider these figures which accompanied the comment just quoted. The inventories of fifty-one large companies on December 31, 1936, totaled about 13 per cent more than at the end of 1929. On September 30, 1937, they totaled \$549, 000,000. This huge amount was almost three times the total of \$195,000,000 at December 31, 1932, and about one-third more than at the end of either 1928 or 1929 although prices were 21 per cent lower.

Was business sufficiently improved in 1936 or 1937 over 1928 or 1929 so as to require larger inventories, or was it proportionately so much better than 1932? Were prices equal to 1928 or 1929? Of course, the answers are "No," and the huge inventories can only represent the excessive quantities purchased for insurance and for speculation.

You recall this debacle but perhaps not many of those which preceded it. I was recently told of the financial results from forward buying by one important convertor of a basic commodity. The *actual* costs of the materials used during the last fifteen years were compared with what the costs *would have been* if each month's needs had been purchased during the *preceding* month at the average market price. The study indicated that under the month-to-month plan the buyer would have saved a very large sum of money, equal to several per cent of the actual costs. The forward buying policy did not pay even without considering the carrying costs of the inventories, which may have been another two per cent of the total actual costs. I have seen only one similar study covering recent years which showed the opposite result. While in some years many businesses can show a nice profit

from a forward buying policy, they seldom do over the *long term*, especially where the carrying costs of inventories are concerned.

These comments sound as though advance purchases could never be justified. I do not want to give that impression. If speculative purchases *could* be confined to the depression and immediate post-depression years, and if a very conservative policy were followed during other years, particularly after an up-swing passes the "normal" stage, a business would have a real chance of making speculative profits over the long term. While many corporations have had such a record, particularly in earlier decades, it is very difficult for any management (or even economist) to forecast the turns of a business cycle. Furthermore, few managements have had the courage to be conservative when they should be, especially in the face of rapidly advancing prices when competitors are insuring the future costs of their materials by forward buying.

As a generalization and a broad conclusion, we can say that buying based upon attempts to outguess the rest of the world on future prices cannot be justified, but that a management may be justified in protecting its future for as long a period as current selling prices are expected to hold and not be increased because of upward trends in costs.

Nevertheless, the dangers inherent in even a conservative position must be recognized. A sudden business collapse brings cancellations of orders on the books as well as decreased buying. A sound position may become unsound within a few days. Therefore, when buying for the future, each corporation should maintain the position that will enable it to liquidate an expanded inventory position with the least grief and in the shortest time upon the first indication of a change in trend in business volume. You will be interested in comparing the year-end inventory positions of the large corporations, particularly those converting basic raw materials, as shown by their annual reports. A few reports, although not any great number, show that liquidation started long before the year-end. I know of one liquidation program which was in full swing by the first of August, for which that management is to be commended.

I referred earlier to Mr. Danner's comments to the Tanners' Council regarding the recent disastrous losses in that industry resulting from inventory write-downs. The next day brought the pronouncement from Washington. I quote from the *New York Herald-Tribune* for May 14:

President Roosevelt indicated today that he was gravely concerned over the possibility that the new spending program might defeat itself just as it has been asserted that the first one did by running up prices and piling up huge inventories of raw materials and fabricated merchandise. He said at his press conference that *he had no plan to keep prices and production under control, but he was hopeful one would be developed in the Congressional study of the monopoly problem.* There was no thought, he said, of reviving the National Recovery Administration, although he described the attempt to regulate production through fair practice codes as an honest experiment in stabilizing production and prices.

It seems to me that we do not need a Congressional inquiry regarding these problems because we already know the answers:

1. Establish sound policies and procedures for co-ordinating inventories and production with sales.
2. Eliminate advance buying in excess of the requirements of a sound protective program.
3. Concentrate attention in all corporations upon earning profits from their primary functions of manufacturing and selling.

These measures are the responsibilities of the management of every business enterprise. Some of them will subscribe to the first step, and most of them will subscribe to the second and third as being sound—for the other fellow—but will do little toward adopting them for their own businesses. If the millennium were here with speculation eliminated and inventory investments always in balance with sales, neither government pump priming nor the efforts of government, management or labor could cause prices to rise fast enough to stimulate speculative or any other kind of excessive long term buying by consumers or corporations. It is probable that the costs of carrying inventories would offset the price rises that would occur. In addition there would be the attendant risks of losses from lower prices following the mild types of business collapse such as we have experienced so many times.

I do not expect such a Utopian situation to be witnessed by any of us in this room. But we can work toward it: first, by establishing the best possible inventory control methods so that management will make fewer mistakes; and second, by establishing adequate accounting and statistical records to show management the results (including the carrying costs), year by year and over the long term, of their forward buying policies.

CHAIRMAN AUSTIN: We have time for some discussion. As most of you know, Mr. Cartmell has a splendid background of practical experience, both in private and consulting capacity, and

he is particularly qualified to discuss this subject. Let us have the questions.

EDWARD P. GILLANE (*Works Accountant, Underwood Elliott Fisher Co., Bridgeport, Conn.*): I should like to have Mr. Cartmell elaborate a little on the human side of inventory control. Suppose you were producing a fairly standardized product at the beginning of the last recession. Isn't the problem somewhat similar to driving an automobile at 60 miles an hour? When you see trouble ahead you may either throw on the brakes suddenly and throw everyone out, or you may slow up gradually and think of the passengers.

I should like to get Mr. Cartmell's reaction as a consultant on what procedure he would recommend. We have unemployment insurance and we feel we should have stabilized employment. Yet, regardless of these facts, with conditions as they were last fall, would you have let everyone go and filled orders from stock, or would you have spent some money and built up your inventory to where you knew it should not go?

MR. CARTMELL: My first comment is that the concerns which had inventories under sound control (not many of them did), had less of a problem than the others. It should be recognized that accumulating inventories does no one any good; there will be only so much business and the proportionate amount of employment. Continuing production at full speed at the beginning of a depression, or even later, merely postpones the slack period of employment. The more inventories accumulated, the longer will be the slack period whenever it does begin. Furthermore, the loss from carrying such excessive inventories, usually delays re-employment.

Keep in mind the fact that no business knows exactly when a depression is beginning, and that business never completely ceases but falls off gradually, although the volume in some depressions falls off at a very rapid rate. If a business and its inventories are under control, employment will diminish gradually at approximately the same pace as the decrease in sales. Hence, as a practical matter we would not and could not close our plants suddenly and throw everybody onto the street, because if we did, we would have no inventories from which to make shipments. On the other hand, if a concern had a very excessive inventory at the beginning of the depression, it would certainly be better off if it did close immediately in order to reduce that inventory to normal.

MR. GILLANE: I think there is another angle to it. If you can keep going without throwing employees out of work you are not likely to have labor trouble later on. The value of increased employee good will might offset some of the money that you would spend in retaining men in employment.

MR. CARTMELL: If you furlough everybody suddenly, it is possible that labor troubles might later cost as much money as if you had continued operations and increased the inventory, but the employees must recognize that the excessive inventory must be decreased at some time by decreasing employment and production. Of course, the solution to the problem varies with different concerns. A concern that does not have the funds to carry a large inventory, must curtail production very promptly, but its employees will have just as much employment in the end as if the lay-off were delayed. On the other hand, a concern manufacturing style products may be better off to complete the finished products and sell them quickly at almost any price before they become obsolete. A concern that is making standardized products should curtail as business decreases and keep all phases of the business under control. The important point is for the management to recognize the situation and to formulate a definite policy and program, instead of temporizing from day to day. Usually, the best policy for the business is the best in the long run for the employees as well.

EUGENE R. NEVINS (*Works Accountant, Manning, Maxwell & Moore, Bridgeport, Conn.*): You mentioned early in your talk that we should get away from dollar and cent values, that we should speak in units of product. Yet when the banks make statements that inventories are rising, they present only dollar and cent figures. Babson points out that in 1936 and 1937 production was really only about 107 per cent of normal on a unit of product basis, whereas back in 1928 or 1929 the figure was probably 122 per cent of normal, measured in units of product.

The population increases from time to time, and the standard of living, we hope, is increasing. Demand is increasing and obsolescence creates additional demand. So I ask you, how can we tell whether an inventory stated in dollars is too high?

MR. CARTMELL: This question has several distinct angles, and I have time to cover only one. Financial statements must be expressed in dollars because that is the only common denominator ap-

plicable to all types of financial data. The inventory figures which I quoted for the fifty-one companies were in dollars, which is the only common denominator for all fifty-one inventories. An inventory value expressed in dollars is a composite of quantities and prices. You cannot determine, when looking at two balance sheets for two different dates, how much of the change may have been caused by quantity changes and how much by price changes. An inventory value on a balance sheet can be judged as high or low in its relation to such other figures as accounts receivable, etc., provided that we know the type of industry, the type of business, the type of products, etc. If we have the profit and loss statement, we can work out ratios between inventories and cost of sales and other data. We must recognize, however, that the inventory value may appear absolutely all right because it is a composite, but may, nevertheless, represent a very badly unbalanced inventory, since some items may be obsolete, some may be excessive in quantity, and some quantities may be too low. Such a condition would cause hardship in production, shipping and the other activities of the business. I have stated in my paper that forecasts should be made in terms of quantities because adequate control can only be exercised in terms of quantities, and that these quantities will be translated into terms of dollar and cent values for financial statements. If your inventories appear too high as measured by a balance-sheet figure, and you decide to reduce them, you exercise your program by reducing the *quantities* of specific items.

A. J. BUCKENMYER (*Assistant Secretary and Assistant Treasurer, Surface Combustion Corp., Toledo, Ohio*): Do you find the inventory control plan which you have described costly to operate, especially where you have a wide variety of items?

MR. CARTMELL: Few organizations are operating an adequate inventory control plan of any type. The expense of operating a plan such as I have illustrated, has not exceeded the cost of any other adequate plan, and usually has been less costly. There are many short-cuts to the plan as presented. For example, you would never determine the total needs of thread for shirt making in terms of so many yards of thread for each kind of shirt. Such needs would be determined as one amount for the total number of shirts to be made regardless of style or pattern. However, even if an extra clerk or two were required to operate the suggested plan as compared with an inadequate plan, the savings on carrying costs, interruptions to pro-

duction and obsolescence resulting from an adequate control will offset any extra expense many times over.

E. R. WESTPHAL (*Auditor, Weil McLain Co., Michigan City, Ind.*): Don't you believe that fear of labor troubles caused many manufacturers to accumulate excessive inventories last year?

MR. CARTMELL: Yes, both of raw materials and finished products. Manufacturers accumulated large finished product inventories with the expectation that shipments could be continued even if a strike did occur. Of course, many were fooled because the strikes were usually of the sit-down type which even tied up the offices. Large raw material inventories were accumulated because of fear of strikes in suppliers' plants. For example, stocks of steel sheets and shapes were accumulated by users because of rumors of a strike throughout the steel industry.

MR. WESTPHAL: Was it necessary?

MR. CARTMELL: It is often wise to do so at times as a matter of insurance although the fears, such as expected strikes in suppliers' plants, sometimes do not materialize. Our recent history with regard to the effects of strikes has been different from the past. In previous years a strike usually involved only part of a plant, and shipments of products could be continued. Furthermore, a large inventory of finished products frequently discouraged such a strike because workers knew that the employer would not be crippled. Most recent strikes have tied up the entire plant and the large product inventories have proved to be headaches as well as the strikes. There are also other kinds of fears. I heard yesterday that one organization has bought a year and a half's supply of two different commodities; the supply of one commodity from the tropics may be affected by the Japanese situation; the other from the Arctic may be affected by a crop failure resulting from a new plant disease.

R. B. KNOTT (*Assistant Controller, Eastern Manufacturing Co., Bangor, Maine*): I should like to ask Mr. Cartmell about his long-range forecast and the place of the purchasing department under his plan. What does he feel is the function of the purchasing department in that connection?

MR. CARTMELL: If I were talking to a group of purchasing agents they might feel that I was undermining their jobs. I define

the function of purchasing as "procuring what is wanted, when it is wanted and at the lowest possible cost." Usually these factors are of relative importance in that sequence. I am not in favor of a purchasing agent having the final authority regarding the quality or the quantity to be purchased. Those are production functions. On the other hand, it is an important part of a purchasing agent's job to be constantly upon the alert to suggest new materials, new suppliers, opportune times to buy, and other factors of that kind. He has a real opportunity through these activities to be of great service in reducing direct material costs and carrying costs, and in facilitating production and service to customers.

R. J. LOWE (*Controller, F. N. Burt Co., Inc., Buffalo, N. Y.*): You spoke of inventory control. Undoubtedly you favor close control so that the inventories are for current demand only. It seems to me that that might have a far-reaching effect. If we were to have inventory control in all businesses, large and small, so that inventories would be for current demands only, wouldn't we then correct a great deal of this recession and depression situation? After all, all that anybody sells is labor.

MR. CARTMELL: That is a very important question and a very sound one. If all businesses were to balance inventories with sales, there would be a marked effect upon the business cycle. Undoubtedly the extremes of depression and prosperity would be much less severe. On the other hand, I do not believe the business curve could become a flat line because of crop failures, wars and such conditions. The curve now swings up too fast because of speculative purchases of materials and building of large inventories considerably in advance of need, and it goes down too fast because businesses suddenly decide upon the opposite program. We might be able to almost wipe out the business cycle as we know it now, if we could establish real co-ordination in all business.

CHAIRMAN AUSTIN: After the next speaker there will be another opportunity to ask further questions on this subject. If there are no more questions now, we will go on to the next speaker.

We will now continue our subject, "The Application of Cost Control to Materials." Our next speaker will develop the phase of this subject dealing with "The Control of Material as a Cost Element."

It is my pleasure to introduce to you Mr. W. C. Skuce, Supervisor of Inventory Control of the General Electric Company.

CONTROL OF MATERIAL AS A COST ELEMENT**W. C. SKUCE**

Supervisor of Inventory Control, General Electric Company,
Schenectady, N. Y.

ONE of the outstanding problems in manufacturing is the control of material as a cost element because material is a very large percentage of the cost of products manufactured. Material used by a manufacturing concern may be defined briefly as the purchased part of the product on which no work has been performed by the purchaser. Consequently, material may be basic raw material or it may be the finished product of some other manufacturing division or vendor. Since each progressive step in processing material might result in a finished product, which in turn could become the material element of cost in another manufacturing division or plant, the control of material should be of constant concern to the manufacturer from design application to shipment to the customer as a finished product.

Material control may be broken down into five steps:

1. Material selection
2. Determining how much to purchase
3. Cost and purchasing control
4. Handling, storing, etc.
5. Material utilization

Material Selection

The function of material selection is primarily an engineering function, but engineers must be supplied with information relative to:

- a. Physical properties of materials
- b. Availability of materials
- c. Vendors' tolerances on material sizes
- d. Costs of materials

Data on physical properties of materials are usually provided in great detail by laboratories as a source of complete and specific information for the engineer. In the majority of cases, however, complete information on specific materials is not required for ordinary design selection.

Similarly, the engineer should be supplied with information on availability of materials, vendors' tolerances on material sizes and

WORKS
ISSUED BY
DATE

STANDARD MATERIAL
COST AND STOCK ROUND, SQUARE, HEXAGON
HOT ROLLED MACHINE STEEL BAR

B4A2A

PAGE 1

B4A2A is low-carbon hot-rolled machine steel. This is the most common grade and should be used wherever possible. For special conditions use: B4A2C, for parts requiring accurate size and good finish without machining; B4H, for better machinability; B4HL, for screw machine; B4CL or B4HL, for high strength.

COST PER 100 LB:

(Wt. 0.285 lb/cu in.)			
Round and Square		Hexagon	
Dia., Inches	Cost	Dia., Inches	Cost
3/16		2 1/8 to 2 1/2	
1/4		2 9/16 to 3 1/16	
5/16		3 1/8 to 4 9/16	
3/8		4 5/8 to 5 1/16	
7/16		5 1/8 to 5 9/16	
1/2		5 5/8 to 6 1/16	
9/16		6 1/8 to 6 9/16	
5/8 to 11/16		6 5/8 to 7 1/8	
3/4 to 1 1/8		7 9/16 to 7 3/4	
1 9/16 to 2 1/16		7 13/16 to 8	

For B4A2A3 (pickled & oil finish) add \$.25 per 100 lb to above prices.

ORDER DATA - NOT FOR USE IN BILLING

Specific Length Extra: {All machine cutting - consult Order & Stores Dept.}

5 ft and longer - no charge.

Under 5 ft - Consult Order & Stores Dept.

Straightening Extra:

Bars ordered within a variation from a straight line of not more than 1/8 in. for each

5 ft of length will incur an extra charge - Consult Order & Stores Dept.

Quantity Extras: Calculated on single item basis

Quantity (lb)	Under 1000	1000-1999	2000-3999	4000-5999	6000-49999	50000 & over
Extra (\$ / lb)	+.5	+.0	+.25	+.10	0	See O&S Dept.

STANDARD TOLERANCES: VARIATIONS IN SIZE, INCHES

Round and Square				Hexagon			
Dia., Inches	Over	Under	Out of Rd & Sq	Dia., Inches	Over	Under	Diff in 3 Meas.
Over	Inch			Over	Inch		
-	5/16	+.007	.010	-	1/2	+.007	.011
5/16	7/16	+.007	.011	1/2	1	+.010	.015
7/16	5/8	+.008	.012	1	1 1/2	+.021	.025
5/8	7/8	+.009	.014	1 1/2	2	+.1/32	1/32
7/8	1	+.010	.015	2		-.1/64	
1	1 1/8	+.012	.016				
1 1/8	1 1/4	+.014	.018				
1 1/4	1 3/8	+.016	.022				
1 3/8	1 1/2	+.018	.026				
1 1/2	2	+.022	.030				
2	2 1/8	+.1/16	1/32				
2 1/8	3 1/8	+.6/64	3/64				
3 1/8	4 1/2	+.6/32	1/16				
4 1/2	5 1/2	+.7/64	5/64				
5 1/2	8	+.8/8	3/32				

B4A2A

B4A2A STANDARD MATERIAL
ROUND, SQUARE, HEXAGON COST AND STOCK
PAGE 2 HOT ROLLED MACHINE STEEL BAR

WORKS
ISSUED BY
DATE

PAGE 8

HOT ROLLED MACHINE STEEL BAR

PREFERRED SIZES (★ or ♦)

STOCK SIZES ()

Dia	Round	Square	Hex.	Dia	Round	Square	Hex.
5/16	*	*		1 1/2	*	*	*
1/4	*	*	*	1 3/4	*	*	*
5/16	*	*	*	2	*	*	*
3/8	*	*	*	2 1/4	*		
7/16	*	*		2 1/2	*	*	*
1/2	*	*	*	2 3/4	*		
9/16	*			3	*	*	*
5/8	*	*	*	3 1/2	*		
11/16	*			4	*	*	
3/4	*	*	*	4 1/2	*		
7/8	*			5	*	*	
1	*	*	*	5 1/2	*		
1 1/8	*			6	*	*	
1 1/4	*	*	*	7	*		
1 3/8	*			8	*		

* or ♦ Preferred sizes; give preference to sizes marked with *.
Code:

SPECIAL WORKS STOCK

Do not use on designs repetitively ordered.

material costs including extras for finish, size, edge, quantity, etc., if the engineer is going to produce designs commensurate with low costs.

To assist in the selection of material and to assure proper consideration of such necessary data, it is essential that cost and stock or material sheets containing this information be provided in as brief and concise a form as possible. It is felt that such sheets should provide convenient standards of material grade and size. They should also provide the information now contained in material cost books, stock lists, and vendors' schedules of quantity extras and dimensional tolerances so that these sheets may be used, not only by engineers, but also by order clerks, cost clerks, planners, etc. Of course, these cost and stock sheets will not replace the detailed material properties books, which will continue to be used as a standard reference for complete data on properties of materials, but they will facilitate the quick selection of standard grade and size of material for more ordinary applications.

A Cost and Stock Sheet (Exhibit A) should be prepared for each standard material and coded with the material specification number. The preface on each sheet gives specific information about the material, its application and references to similar materials with slightly different characteristics. The price bracket of the sheet is arranged to permit entering prices in the vendors' size extra range, and is readily adapted to entry of material cost standards or liquidating prices. The notes and tables on extras and tolerances are taken from the vendors' contracts or price lists. On the reverse side of the cost and stock sheet provision is made for the entry of sizes carried in stock, which is indicated by showing the location of the stock sizes.

The skeleton form of sheet is printed by an offset process and these master sheets are delivered to each division using or stocking this material. They enter prices, indicate stocked items and distribute to their division. This eliminates the preparation of similar semi-fixed information by several different groups and reduces the cost of the preparation of such data. A set of the cost and stock sheets is forwarded to the company's standards department which groups all departmental or plant sheets and issues a master sheet showing the stock situation for the entire company.

Preferred Numbers

Preferred numbers have been selected as sizes to be stocked. They are now available as American Standards and their use should be of

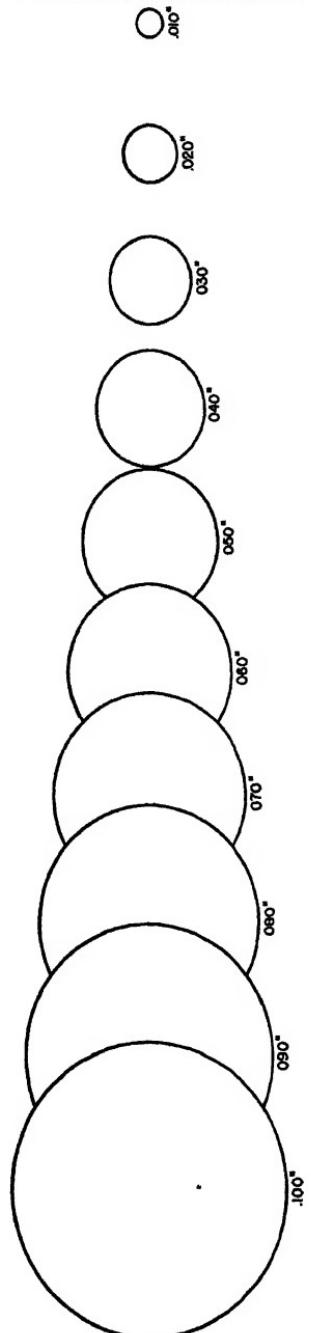
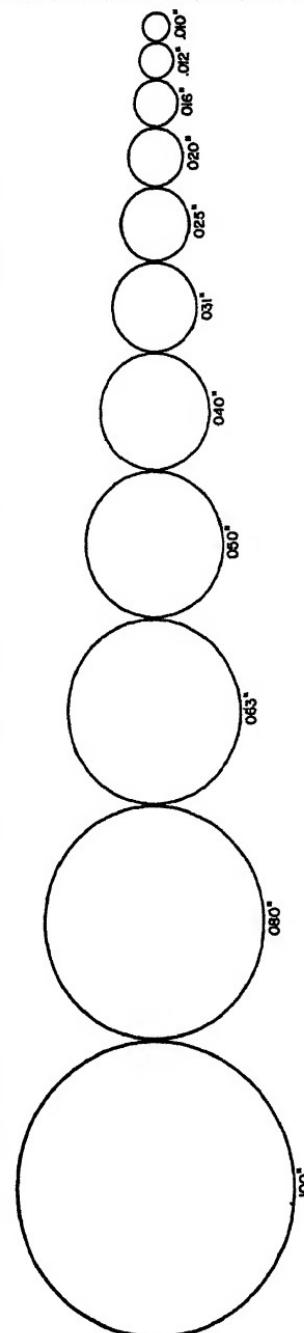
vital interest to anyone interested in the general subject of material control.

"Preferred Numbers" are a geometric series of numbers selected by convention to permit and assist in establishing logical ranges of sizes or capacities that can be used universally where interchangeability is desirable. Being a geometric series, each succeeding number is approximately a fixed percentage greater than the preceding number as for example, 10, 16, 25, 40, 63, 100. Each of these numbers is approximately 60 per cent greater than the preceding number as contrasted with the constant arithmetic difference in a series such as 10, 20, 30, 40, etc. Preferred numbers are established in relation to the number 10 and the series agreed to by convention are on the basis of the number of steps between 10 and 100. The 5, 10, 20, 40, and 80 series of numbers indicate respectively the number of steps in the series between 10 and 100; higher or lower numbers are obtained by multiplying or dividing by 10, 100, etc. The specific numbers that have been approved as American Standards are contained in the American Standards publication Z17.1-1936. In addition to the basic decimal series, fractional preferred numbers are included for linear dimensions that are commonly expressed in inches and fractions.

Because they are a logical system of numbers, (Exhibit B) preferred numbers permit the use of a minimum number of sizes to adequately cover a given range for ordinary requirements. Obviously, if everyone uses the preferred numbers in standardizing material sizes, additional economies will accrue both to the manufacturer and to the user because of the greater demand for the same (as well as fewer) sizes that will ordinarily be manufactured, stocked and ordered. Immediate prospective economies in fewer sizes stocked, reduced inventories, interchangeability of stock and greater quantities per purchase order make the use of preferred numbers by the General Electric Company attractive even in advance of general acceptance by industry as a whole. General acceptance will result in further advantages and economies such as increased availability of material in the common sizes, elimination of dissimilar gauge sizes and, hence, interchangeability of materials heretofore dimensioned and priced in accordance with those gauges, etc.

For all of these reasons, the General Electric Company is particularly interested in promoting the understanding and use of preferred numbers and is doing so by example, one application being the new cost and stock sheets.

In introducing preferred numbers, it is expected that the sizes

TYPICAL ARITHMETIC SERIES**10 - SERIES - PREFERRED NUMBERS (GEOMETRIC SERIES)**

shown initially will not adequately cover present requirements; hence numerous special sizes will be continued for some period of time. However, new designs should call for preferred number sizes and on the basis of demand, the recommended size shown on these sheets may be revised to more accurately reflect requirements. To concentrate the demand on the fewest number of sizes, the coarsest series possible should be used. The five series preferred number range gives about 60 per cent difference between sizes. The ten series gives 25 per cent, the twenty series 12 per cent, and the forty series gives 6 per cent difference between sizes. It is felt that the forty series can be avoided in practically all cases.

It is planned to use these cost and stock sheets to take further advantage of large quantity purchases and to eliminate small quantity direct purchases when stocks of such materials are available in another location within the company. It will also be possible to purchase carload lots of some materials by combining two or more plants' requirements in order to take advantage of quantity lot prices through the use of stopover freight car deliveries.

Determining How Much to Purchase

Determining how much to purchase has been the subject of much controversy because of the many problems in balancing supply with demand, with proper consideration of obsolescence, storage, capital tie-up, expected usage and low costs. Of course the length of time required to procure material is a primary factor, but we should give proper consideration to the production cycle in the department for which the material is being supplied.

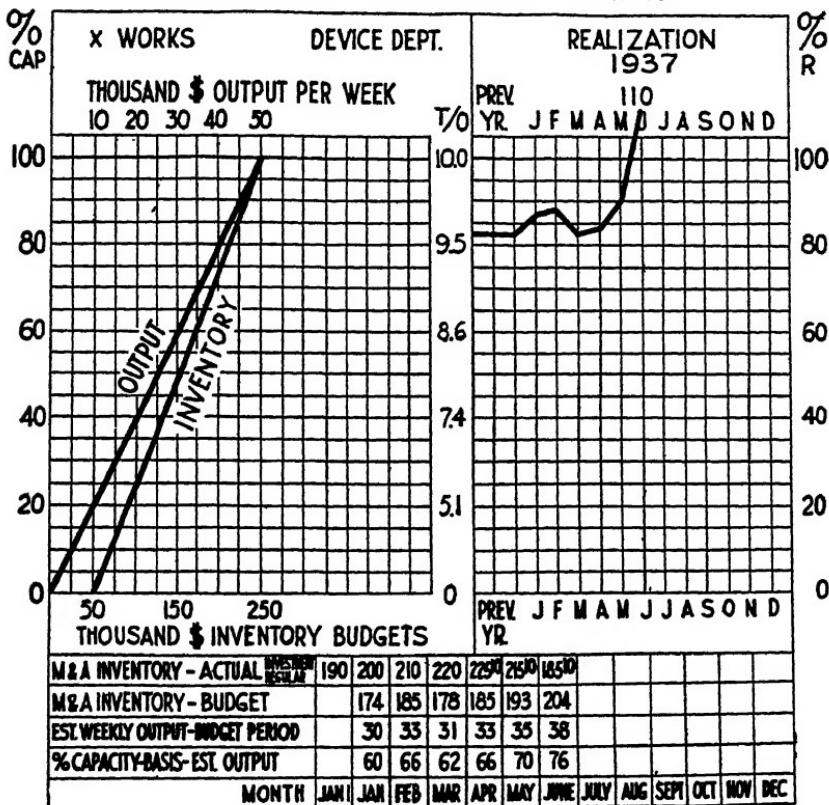
Material control is dependent on our method of inventory control, and the objective of inventory control is to provide material and to process parts and apparatus commensurate with the requirements for the next production cycle, based on expected shipments. The final objective, of course, is low cost and high turnover.

The Inventory Control Chart

In order to determine the required inventory for a department or plant, an inventory control chart is prepared. This chart (Exhibit C) shows the estimated output at various rates of capacity for a given department or plant. Based on the length of time required to produce the average product in this department or plant, or in other words, the production cycle, the number of times turnover at capacity

output can be determined. The fact that working inventory should be proportional to the rate of output based on capacity turnover is recognized. At zero capacity, however, a certain amount of inventory is necessary in many lines of manufacture so that adequate service to customers may be maintained. This available inventory is called

INVENTORY CONTROL CHART



A-88052

EXHIBIT C

a minimum or standby inventory. Having established the minimum inventory, it is added to the working inventory. As the rate of production increases, the need for this minimum or standby inventory diminishes so that at capacity none is needed. Using this as a basis, a budgeted inventory is set up for any rate of production based on a given number of times turnover at 100 per cent capacity. Conse-

quently, a bogey turnover is established for all rates of production. It will be noted on this chart that the measurement of the actual inventory against the budgeted inventory gives a percentage realization which indicates the effectiveness of inventory control and which is not distorted by fluctuating rates of production.

The control chart, therefore, is a barometer because it looks into the future and indicates whether or not the inventory of today is adequate for the output of the coming period. It also indicates the probable load, shows trend of business activity, indicates discrepancies in billing costs, and presents other vital departmental statistics in a compact and concise manner.

The foremen and other members of a manufacturing organization are equally responsible for the realization of the inventory budget because greater industrial efficiency shortens production cycles and shorter production cycles result in increased turnover and a greater return on capital investment.

Inventory Turnover

Inventory turnover is the number of times capital is reinvested in inventory in any given period. It is usually computed by dividing annual rate of output by average inventory. For control purposes the expected turnover can be calculated from the estimated output for the coming turnover period from the inventory control chart.

Obviously, inactive and obsolete inventory has a bad effect on turnover, and reduces the earnings on the capital investment. Therefore, the savings due to procuring stocks of material in excess of the requirements for the next production cycle should be discounted by the reduction in earnings on working capital, the hazard of deterioration and obsolescence, and storage and handling charges.

Cost and Purchasing Control

Materials must be contracted for in order to protect our requirements for future production. Because most of our materials must be purchased prior to receipt of customers' orders, it is necessary that these contracts be made in advance of requirement date.

Raw material estimates must be prepared by inventory control supervisors, and must be based on past and expected requirements to provide adequate information for use in making such contractual agreements. Thorough consideration must also be given to possible design changes, handling and storage charges, etc., when preparing these estimates. The purchasing department makes contracts for the

requirements of the manufacturing divisions to protect their manufacturing schedules and to take advantage of trade discounts through quantity contracts, with full consideration of market conditions.

When contractual agreements have been made, order data cards are distributed and these cards indicate the manufacturing division's ordering groups, names of vendors upon whom orders should be placed, the terms of the contract, the quantity contracted for, etc.

In each manufacturing department a dual card system is maintained, one for ordering and planning and the other for perpetual inventory data. If material is purchased from a vendor, a purchase order card is used to which is posted the orders placed on the vendor and the promised and delivery dates. If the material is to be processed in the manufacturing division, detailed planning is shown on the reverse side of the card and orders are posted on the front of the card. The perpetual inventory cards may show the inventory situation as:

1. An available balance.
2. An actual balance.
3. Mortgaged and actual amounts.

Before orders are placed against the contracts, the order clerks take into full consideration the information supplied on the cost and stock sheet, so that the most economical purchase quantity is ordered, giving full consideration to recommended protective stock, turnover, possible obsolescence, storage and handling, the objective being ultimate low cost.

Requests for material (departmental material orders) are usually made through sending the order card with quantity required and requested delivery date, to a central order section where requisitions are issued for materials. This central organization combines like kinds of materials and, in a large organization, places requisitions on other plants of the company which stock large quantities of specific materials as indicated by the cost and stock sheets. Requisitions are placed directly on vendors for materials on which order data cards are available. Special items not on contract are referred to the central purchasing department for ordering directions.

In the event that two or more divisions of a company use the same size and grade of material, three things are generally considered:

1. Can either division purchase regularly the quantity required to obtain the minimum price?
2. Can the combined requirements justify carload purchases, and if

so, are the divisions so located that stopover car delivery from the vendor can be made?

3. Should the material be purchased by one division to supply the needs of the others?

Considerations 2 and 3 depend largely on locations of the divisions, the freight charges, quantities required, etc.

In the central ordering section of each plant, a master card should be maintained for each size and grade of material, and on receipt of invoices prices should be checked and receipt noted. Where cost standards are used, this may be the place to compute variances for base price extras, quantity extras, edge extras and freight extras. An analysis of the extras paid should be discussed with department engineers, order clerks, etc. This should act as a policing agency to the material selection activity.

Handling and Storing

Handling, storing, etc., of materials is a major problem in material control, because much of the effort of manufacturing is in receiving, storing and moving materials. This problem should be given thorough consideration from the following points of view:

1. Reduction of expense in unloading and handling materials to put them in storage, through requesting proper packaging by vendors, and proper loading of cars to facilitate the effectiveness of methods of unloading through the use of fork trucks, etc.
2. Crane facilities in storage areas for heavy materials.
3. Perpetual inventory records may be partially eliminated in some lines of production by procuring materials in unit quantity packages.
4. Conservation of space in storage.
5. Reduction of expense in taking physical inventories through the use of unit packages.
6. Conveyorized setups in manufacturing departments and between departments.
7. Trucking facilities between buildings and storage.
8. Proper stock bins in convenient locations.

Material Utilization—Waste

The problem of material utilization to prevent waste is primarily one of careful planning to use the minimum amount of gross material to make a given unit. The co-operation of the foreman and material handlers are needed to assure the success of the planned procedure.

The function of material utilization to prevent waste might also be set up in the following (controlling) sub-divisions:

1. PLANNING

- (a) Make designs which require a minimum amount of theoretical waste.
- (b) Make tool layouts to minimize material waste.

2. EXECUTION OF PLANNING

- (a) The factory must use material specified or report excess as an extra cost.
- (b) The factory must exercise careful control of expensive materials, such as silver solder, which may not be totally controlled by drawings, specifications, or planning.

3. SALVAGING WASTE MATERIALS

- (a) There is a continued need for proper segregation and collection of scrap materials to assure best realization from such material.

Material Utilization—Spoilage and Extra Costs

Spoilage losses and extra costs resulting from faulty measurement are due to errors in judgment, carelessness, and variables in materials and machines. To control spoilage losses it is essential that we set up a system for reporting spoilage and extra costs. Fundamentally, such a report should include the following principles:

1. It should be built up on a sound basis so that we are sure we report all of our losses.
2. It should be available promptly, in order to serve as a basis for action, not history.
3. It should show a logical breakdown of losses according to those who are in a position to correct them.
4. It should indicate the trend of losses in relation to volume of business. (We use direct labor as a base.)

A report, however, is important only as it serves as a basis for control, and it is control that we are most vitally concerned with.

Key to the Control of Losses

Fundamentally, the key to the control of losses lies in five points.

1. A thorough analysis of the losses and their causes. The analysis of losses is most important. We have our reports showing the loss for each department in relation to its direct labor load.

Against this we have a bogey which was established by the head of that department. Thus we have a standard of performance by which the management can judge the departments that are out of line. But it is not enough to know the dollar value. We must know what the principal items are and their cause.

We must pick out the largest items and attack them first in a systematic manner. We must present a simple day-by-day picture of losses to those who are in a position to control them. In the General Electric Company we have a small organization whose duty it is to analyze waste and spoilage losses, to point out the high spots and to stimulate the line organization to take action.

2. Proper training of workers, both factory and office. Proper training of employees has an important bearing in the reduction of spoilage. During periods of increasing business, losses caused by new help are an important item. To minimize this we must first select the best type of employee available, using mental and physical aptitude tests where practical. We must then give special attention to the training of the new employees, using competent instructors who are skilled in teaching rather than using the best workmen. In some places we have separate training rooms in which the employee spends a few days before being placed in the production line. We must see that every worker, both factory and office, knows the best way to do his job.

3. Proper tools and equipment to do the job, and proper maintenance of that equipment. Much spoilage can be eliminated by having the proper tools and equipment and seeing that they are properly maintained. All new tools must be checked carefully before they are placed in production and after that it is the responsibility of the foreman and the inspector to quickly detect and correct faulty equipment. A maintenance program is recommended to keep equipment in operation at a high standard of accuracy.

4. Careful planning. It is impossible to do any job well without first doing a careful planning job. This applies to the control of waste and spoilage. When an original design is made up, co-operation between the engineer, factory methods man, tool man and factory supervisor is of the utmost importance in developing designs and methods for low cost and low hazard. We should plan our inspection to catch poor quality as soon as possible. We must keep in mind that inspectors are not merely rejectors but can be of great assistance in the control of spoilage. Proper scheduling reduces extra setups and

extra costs due to the use of less efficient machines. The prepricing of rework operations may substantially reduce the cost of such rework. Waste may be controlled almost completely when the job is planned by the design of dies and tools and by the size of stock order.

5. Active interest by every member of the organization in reducing waste and spoilage. Behind the first four points must be an active interest by every member of the organization in reducing losses. We must impress the importance of good work on the workman by establishing pride in the finished product, by acquainting him with the cost of defective work and by setting up competition between groups of workers. I do not think that any workman wants to do poor work but many times he is careless or indifferent. It is the responsibility of the management to stimulate his interest in doing a good job.' Foremen and supervisors should visit the salvage department to observe at firsthand the tremendous magnitude of scrap from any plant. This will be more eloquent than any figures in convincing them that a better job can be done.

Quality Control

One form of statistical approach in the analysis of losses is called quality control.

The objective in quality control is to maintain over a period of time a stable level of quality which is commensurate with the cost. The factors involved in quality control are spoilage, inspection and complaints, and the intent is to achieve an economic balance in terms of these factors, which will of course result in the minimum total cost. Statistical tools are a definite aid, not only in determining the economical level of quality control, but also in isolating variables for a solution of manufacturing problems.

The design, through the use of tool-made samples, sets up a quality target. If the average of the component parts are at the nominal dimensions, there is little likelihood of an unfavorable accumulation of parts in the sub-assemblies and finished assemblies, which leads to increased spoilage, inspection and complaints. A simple analogy of what is attempted might be found in shooting at the center of a target within the circle of tolerance permitted by the target. If the gun aimed at one of the targets is continuously striking the top left corner, either the sights should be corrected or it should be aimed to allow for its degree of error in order to hit the bull's-eye.

SUMMARY

Now that we have considered the general principles of material control, let us consider some of the complications that arise in actual operation, and how we cope with them.

Providing Inventory in Excess of Requirements for the Next Production Cycle

It has been said that the objective of inventory control is low cost and high turnover. Therefore, larger stocks may be provided than the expected rate of output dictates, if by such a practice the resultant final costs are lower. The nature of circumstances which might result in higher inventories and still produce lower costs are:

- a. Quantity purchases to take advantage of lower price or prevailing prices before a price advance.
- b. Economical quantity runs of parts to obtain a higher machine utilization through the elimination of setup costs.
- c. Quantity purchases to protect against the interruption of manufacturing caused by strikes, etc.

Utility Classification of Inventory

Inventory is an asset of a business and from a financial viewpoint we should classify it as we do accounts receivable. The kind of inventory on hand may be measured by utility classification as active, inactive and obsolete.

- a. Active inventory is material, parts or apparatus which will be used within the turnover period without loss.
- b. Inactive inventory is material, parts and apparatus of current design of which the stock on hand is in excess of the requirements of the budgeted period of turnover.
- c. Obsolete inventory is material, parts or apparatus of superseded design which will not be used within the budgeted period.

Based on this classification, suitable reserves may be set up for losses due to obsolescence.

The Control of Obsolete Inventory Generation

In order to maintain a leading position in the industry, it is essential that new and improved designs be introduced and new uses de-

veloped for the products of the industry. This brings with it many problems, the greatest of which is the control of the transition period so that all of the parts on the old design will have been utilized before the new design is on the market. In order to accomplish this, a transition committee, composed of the engineer, the commercial representative, the production manager and the factory superintendent must work in close co-operation so that transitions will be made with the minimum of loss.

Many changes are for integral parts of a piece of apparatus rather than for a complete new product and an effective system to take care of these alterations or changes is essential. It should accomplish a distinction between current losses due to engineering changes, and obsolescence losses due to inability to use inventory which was provided for future production, so that the control of both types of losses may be kept in the proper channels. It is important, also, that items of current design on which excessive stocks exist, be reviewed because these excessive stocks may become obsolete inventory. In addition, it is important that over-runs of parts and material to be used expressly on a given requisition be controlled so that the factory floor will not be cluttered up with so-called surplus goods, and to the end that conditions causing such over-runs may be corrected and such material may be disposed of to the best advantage.

From the foregoing, it is quite evident that the purchase of materials and the processing of these materials into parts or apparatus is dependent on two things:

1. The requirements of the budgeted turnover period.
2. The ultimate unit cost based on such requirements.

Disposition of Obsolete Inventory

The disposition of obsolete inventory is essential to divert invested capital back into active channels. This task is best accomplished by having lists of such material prepared, and analyzed by a group composed of representatives of the engineering, production, manufacturing, cost and planning departments. Monthly progress reports (Exhibit D) are made from totals derived from these detail lists.

The methods of disposition are:

1. DIRECT APPLICATION

This is the natural method because an order for the item is filled.

OBSOLETE INVENTORY REPORT
DEVICE DEPT.

	GENERATED MONTH	USED YR TO DATE \$	MONTH \$ —	SCRAPPED YR TO DATE \$ 2000	MONTH \$ —	BALANCE 11/1/36 \$23,286
NOV.	\$ 300	\$ 300	\$ —	\$ 2000	\$ 2000	12/1/36 21,586
DEC.	200	500	500	—	2000	1/1/37 21,286
JAN.	200	700	1500	2000	500	2500 2/1/37 19,486
FEB.	250	950	500	2500	100	2600 3/1/37 19,136
MAR.	50	1000	500	3000	400	3000 4/1/37 18,286
APR.	100	1100	1200	4200	100	3100 5/1/37 17,086
MAY	100	1200	1100	5300	200	3300 6/1/37 15,886
JUNE	300	1500	1200	6500	200	3500 7/1/37 14,786

**TOTAL DISPOSED OF \$10,000 USED \$6,500
 REALIZATION - 65¢ ON THE DOLLAR
 REDUCTION 36.5 %**

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EXHIBIT D

2. SUBSTITUTION FOR OTHER ITEMS

This is accomplished by substituting one type of material, part or apparatus for another when the substitution will not impair the service to be furnished. This might involve some loss.

3. REWORKING TO APPLY

Remachining a part to a new design is an example of this method of disposition.

4. EXTRA WORK TO CHANGE CHARACTER OF MATERIAL

A part now in stock might be converted to another type by additional labor or a change in component parts.

5. SALE TO AN AFFILIATED COMPANY OR ALLIED WORKS

Material not used in one works or company may still be good stock in another.

6. RETURN TO VENDOR FOR CREDIT

Because the vendor has many outlets for materials purchased from him for a specific purpose, he can often allow credit for material he is manufacturing for other customers.

7. SCRAPPING

If material cannot be disposed of for more than salvage value and there is no possible future use for the material, it should be scrapped to get what value is obtainable.

Inventory control and material control are both forms of cost control and through improved cost control it is possible to reduce costs, reduce manufacturing cycles, and increase industrial efficiency. The American standard of living has improved and will continue to improve if more things can be made available to more people at less cost.

CHAIRMAN AUSTIN: We have had another splendid paper and now we have some time for discussion. Mr. Skuce has had a great deal of practical experience. Before we begin discussion of his paper I want to repeat my promise. If you have a question or two for Mr. Cartmell, you will be given an opportunity to ask them later. First let us have questions on Mr. Skuce's paper.

CLARKE L. SHABINO (General Electric Co., Bridgeport, Conn.): On your obsolete inventory report, you show a realization

of 65 cents on the dollar based on the amount used. You mention the fact that in many cases the material can be substituted or reworked, which will involve a loss, and in other cases the material can be scrapped, and will have a substantial salvage value. Wouldn't that change the realization figure?

MR. SKUCE: We show at the bottom of Exhibit D that in a particular department a realization of 65 cents on the dollar had been accomplished. In discussing the various means by which obsolete inventory might be converted again into active capital, I intimated that losses would result from other than direct application. When an item is disposed of by substitution or by scrapping, we know the first cost value of the material and we know what reduction has been made in our obsolete inventory. We also know through our scrap recommendation, waste ticket or spoilage report, what losses were incurred by making that material usable or by scrapping it. If the total reduction were \$100 and the losses were \$35 due to reworking the material or taking a loss from full cost to scrap value, then the resultant amount of losses deducted from the full cost inventory or reduction of obsolete inventory will give us our net realization. This net realization is the amount shown in the "used" column. We express the amount recovered or realized divided by the total amount disposed of to get our percentage realization.

MR. SHABINO: Some of those figures as shown here may be misleading to some not familiar with our methods of handling this generally.

MR. SKUCE: I would recommend, if you are making a similar chart, that you show your realization percentage in a column to the right of the other figures. You may want to run a monthly realization or a year-to-date realization. We have not made such a provision on this chart but I think it is advisable that you do so on yours.

JOHN H. DeVITT (*Assistant Auditor, Hammermill Paper Company, Erie, Penna.*): Do the points that you outlined on spoilage and waste control apply to processing departments as well as machining departments?

MR. SKUCE: Yes, they do. We must know in our process departments the ratio of losses to volume of business. It is necessary

that we follow losses on an over-all measurement basis in a process department the same as we do in any machining department. On the other hand, the method of approach in correcting the problems is quite different. In the process job we are very often working with basic materials, and the nearer you get to a basic material, the more unknown variables creep in. In a basic process or a process using basic materials, it is necessary that we try to isolate variables that cause losses. By taking the variables that do not happen the same way all of the time and making one or more of them constant factors, we can find the effect of other variables on the process. Does that answer the question?

MR. DeVITT: Yes. Thanks very much.

CHAIRMAN AUSTIN: At this point I should like to suggest that those of you who may have questions on the control of indirect material may properly defer those questions until this afternoon as that subject will be handled by Mr. Hanley. However, if there are some here who want to bring the discussion in at this time it will be perfectly all right. At any rate, Mr. Skuce will be present at the later session.

MR. SKUCE: May I say a word about indirect materials?

CHAIRMAN AUSTIN: Yes, sir.

MR. SKUCE: In our inventory accounts, indirect materials bought ahead are a deferred charge to expense, and therefore are a part of our raw material control problem, and the same general principles apply as on direct material.

LESLIE W. COX (*Cost Accountant, Caspers Tin Plate Co., Chicago, Ill.*): I have a problem of setting a standard price on material. We have several different sources of supply for a given raw material and several different prices. When it comes to inventory, I can use only one price for that type of material, although we buy it from different people and we get different quantities. My question is: How shall I set a standard and what basis shall I use for handling that material?

MR. SKUCE: I do not pretend to be an authority on methods of setting up cost standards, but I would suggest the following. You

can establish a price based on the constant factor of material price. By that I mean the base price of the material plus the size extra, the finish and quality extras, which are constant factors of the material price. To these constants factors of material cost you can prorate the extras for freight, quantity, etc., which you have paid.

CHAIRMAN AUSTIN: Does that answer your question? You agree it does? Is there another question?

JOSEPH A. PETRICK (*Cost Accountant, Kellogg Switchboard & Supply Co., Chicago, Ill.*): It is my opinion that most companies take care of obsolete material by merely setting up a reserve for it. It is quite a sum, I imagine, in most companies. I was wondering whether you make out a report showing who is responsible for obsolete merchandise.

MR. SKUCE: Yes, we do. The losses, when they actually occur, are charged against the reserve set up for obsolescence, and we show who was responsible for such losses. When the material is first classified as obsolete, the papers changing the design indicate at that time who is responsible for the material's becoming obsolete, but we do not make any charge which we include in our manufacturing loss report until the loss actually occurs through disposing of the material. We set up a standard method of classifying material as obsolete, based on expected usage as well as design status. All material classified as obsolete need not be lost. As I have pointed out in my paper, we expect to get a very high realization from obsolete inventories, but the actual losses when they are reported are charged to the department responsible.

E. R. NEVINS (*Works Accountant, Manning, Maxwell & Moore, Bridgeport, Conn.*): Without prying into the secrets of the General Electric Company may I ask whether that 65 cents on the dollar is anywhere near the actual results?

MR. SKUCE: It is not nearly as good as I think it should be.

MR. NEVINS: That is the reason I asked you. If General Electric Company has that as actual, we will all adopt it as a standard.

MR. SKUCE: I will tell you this. You will find as you go through any large organization, taking the various departments that

you have to cope with, that the realization will vary. A department might be doing an exceedingly good job if they have a 25 per cent realization. When a department is making a stylized line, it is necessary to make well planned design transitions. It is possible to get a higher realization in a line that is not so definitely stylized. If the design has been in use for a number of years, you may still get a good volume of replacement part orders. The degree of realization in any company or department, to an outsider not interested in that department's problems, is not too significant, but I think the basic principles which I have outlined will apply to your department and to the other departments represented by all present. I hope you get a 65 per cent realization.

CHAIRMAN AUSTIN: I think we have had splendid discussion this morning on these two papers by two very practical men. The papers, I think we can say, amount to case studies of the subject. I want to thank you ladies and gentlemen for the attentiveness you have displayed during the sessions and your contribution to the important part of these conferences, that is, to the discussion. This is your conference, you know, and while we on the Program Committee try to do our part in arranging the program, and the speakers certainly carry the heaviest part of the load, yet the final result, good or bad, is largely in your hands.

If there is any further discussion, we still have a few minutes.

R. J. LOWE (*Controller, F. N. Burt Co. Inc., Buffalo, N. Y.*): On the realization chart, Exhibit D, you show a percentage but fail to show the period covered.

MR. SKUCE: The 65 per cent realization covers the period from the previous physical inventory date to the end of June.

CHAIRMAN AUSTIN: Are there any further questions? If there are none, I am sure you all want to express your appreciation to both of our speakers.

. . . The meeting adjourned at twelve-fifteen o'clock . . .

SESSION IV
APPLICATION OF COST CONTROL
TO MANUFACTURING

WEDNESDAY AFTERNOON, JUNE 22, 1938
E. A. AUSTIN, *Chairman*

L. V. BEDELL, following early experience in banking and with companies manufacturing automotive parts, served with the Aircraft Production Division of the U. S. Army on the production of fighting planes during the World War. He returned to the industrial field as Cost Accountant and Auditor for General Motors Corporation and subsequently became Assistant Treasurer of the Stutz Motor Car Company. Since 1926, he has been associated with the International Business Machines Corporation, first as salesman, and later, as an executive in the manufacturing division. He now holds the position of Executive Assistant with the International Business Machines Corporation. Mr. Bedell had been a member of several chapters of the Association since 1926, and is now serving as Director of Program for the Binghamton Chapter.

EDWARD J. HANLEY is a graduate of Massachusetts Institute of Technology, class of 1924, and of the Graduate School of Business Administration of Harvard University in the class of 1927. He entered the employ of the General Electric Company in 1927, and worked successively on the staff of the Works Accountant, Schenectady Works, as Auditor in Charge of Works Accounts, and as Assistant Superintendent of the Schenectady Wire and Cable Department of that company. In 1936, he was elected Secretary of the Allegheny Steel Company, Brackenridge, Pa., where he now has charge of all accounting matters of the company. He is Past President of the Albany Chapter of the N.A.C.A., and is currently serving as Director of Membership of the Pittsburgh Chapter. Mr. Hanley has been a member of the National Board for the past three years.

APPLICATION OF COST CONTROL TO MANUFACTURING

CHAIRMAN AUSTIN: Without any preliminaries we will begin the technical session. This afternoon we tackle the subject of "Application of Cost Control to Manufacturing." Our first speaker will devote his attention to the phase of this subject having to do with the control of labor costs.

Our first speaker is Mr. L. V. Bedell, Executive Assistant of the International Business Machines Corporation, Endicott, New York.

THE CONTROL OF LABOR COSTS

L. V. BEDELL

Executive Assistant, International Business Machines Corporation,
Endicott, N. Y.

IN THE past few years we have been exposed to some concentrated doses of experience in the control of labor costs. These experiences seem to emphasize the importance of supplementing our accounting and statistical approach to the control of labor costs. Where these supplementary control measures occur outside the purely accounting functions in an organization, it may be possible for the accountant only to suggest their use or to co-operate in verifying their necessity or results.

If the word "control" means to curb, i.e., to check or restrain, then the subject, "Control of Labor Costs," has no place in this convention. To the accountant "control" should mean to guide, regulate, or exert a directing influence. The control of labor costs should be focused upon the guidance of legitimate, reasonable expenditures so as to secure the maximum return from disbursements.

If this objective is acceptable, then labor costs are affected by personnel policies, selection of new employees, induction training, job training, safety policies, general housekeeping and stabilization of employment policies, to mention a few factors not directly tied up with wage plans, job standards, etc. To explore in detail the several subjects suggested is impossible at this session. A complete convention program might be developed from this list.

Personnel Policies

Personnel policies permit little generalization because of conditions that must be recognized as local to the average industrial organization. If your plant is in a large community you may not need to concern yourself with recreational facilities for your employees. If your plant is in a small community the situation may be greatly altered. The charge of paternalism has been thrown at organizations whose personnel policies appear to invade the private lives of their employees. If your objective is the greatest good for the greatest number, then the charge can be ignored. Two things are important to your employees: (1) security of income, and (2) the opportunity to raise individual living standards, i.e., advancement. These two prime interests are apparently instinctive in the human race. They are probably our human interpretation of nature's law of self-preservation. If our personnel policies can be established and administered so as to satisfy these basic desires, they will stand the test of time.

Personnel policies affect labor costs largely because of employee attitudes generated by these policies and, more importantly, their administration. If your personnel policies have created a loyal work force, who have confidence in management and its decisions, who believe in the company's present and future, in short, who honestly feel they are employed by the best organization in the country, then your personnel policies are definitely contributing to low costs and the elimination of waste in your operations.

Selection

The selection of additions to the organization is the first step in the control of labor costs. The ideas here presented on this subject refer only to employees hired to replace ordinary losses and to provide for actual force expansion. They do not apply to the re-employment of considerable numbers following an enforced reduction.

Our first consideration should be the selection of likely applicants who measure up to minimum shop requirements of general education, minimum age and physical capacity. This selection should then be carefully analyzed by suitable aptitude tests. Each job has its characteristic qualifications and tests have been developed which yield a measure of these qualifications or an advance estimate of the probable success of the applicant on a given job.

It requires about six cents worth of material and forty minutes of time to obtain this advance estimate of an applicant for clerical work. About eleven cents worth of material coupled with seventy-five min-

utes of time will eliminate the potential failures for light assembly work. Some standard tests in wide use are:

1. Otis Self Administering Test of Mental Ability
2. MacQuarrie Test of Mechanical Ability
3. Revised Minnesota Paper Form Board Test
4. Minnesota Vocational Test for Clerical Workers
5. Thurston Examination in Typing.

Aptitude testing is not yet a science, probably never will be, but its usefulness in reducing to a minimum square pegs in round holes should be fully apparent to anyone who has made an unbiased investigation.

The filling of an opening in your organization at the bottom wage level deserves as much care and attention in the selection of the employee as the filling of an executive position. You may be selecting a future executive. If the new employee is a young high school or college graduate, he certainly hopes you are selecting a future member of your executive family.

Labor turnover is usually highest in the lower wage brackets and frequently this turnover is a direct reflection of the care and thoroughness employed in adding new names to your payrolls. A plant with a high labor turnover, not caused by seasonal or volume fluctuations, is usually a high cost plant. In such a plant, good help is obtained only when jobs are scarce. When jobs outnumber qualified applicants, the plant with a low labor turnover will usually attract the best help available.

Induction Training

When you engage new employees, particularly young people, your first consideration should be a proper introduction to the organization. This has no relation to a drawing room introduction. You are bringing the employee into a strange environment, a strange social organization, and you should make every effort to assist the new employee to become adjusted to his surroundings. Many organizations devote a short period to a planned program of induction training.

Induction training refers to the instructions given a new employee in all subjects which do not specifically pertain to how to do the job, and should produce four results:

1. Shorten the time required for a new employee to become acclimated to his new surroundings.

2. Complete the employee's general knowledge of the company's policies, rules and activities.
3. Insure the new employee receiving accurate and unprejudiced information.
4. Lay the foundation for common understanding between the new employee and his line supervisor, thereby encouraging the practice of "going to your foreman with your problem."

Induction training is the joint responsibility of the personnel department and the line supervisor to whom the employee first reports.

Qualified staff members explain shop rules and working schedules; present a brief history of the company; display and explain typical products; acquaint the employee with special services and facilities, such as shop classes, recreational facilities, group insurance, sick benefit plans and retirement policies; instruct him in general safety rules; and conduct him on a tour of the plant.

Induction training need not cover a long period, but it must be carefully planned and thoroughly carried out. First impressions are lasting ones. Any reasonable effort to get your new employee off on the right foot will pay dividends. A follow-up of your selection and induction training in the form of one or two interviews between the personnel director and your new employees during the new employee's first six months of service will aid materially in a satisfactory adjustment and, at the same time, help the personnel department in making future additions.

Job Training

Job training, how to do the job, should follow immediately. The old idea that we can learn by doing may be the expensive way to train new employees, even for the simplest tasks in industry. If industry is to finally absorb all of today's unemployed it must recognize that many of these prospective employees have, through no fault of their own, never learned how to work. Even if the directions are printed on the handle of the pump, we should not assume that the new employee will recognize the pump, find the directions or properly interpret them.

Under adverse business conditions, we are prone to try to speed up job training in order to obtain the desired increase in output which justified the addition to our force. Job training is needed to insure effective performance, both qualitative and quantitative, and the training program needs some planning and a thorough follow-through.

You have heard the expression, "Those who can, do. Those who can't, teach," as explanation of the difficulty experts frequently exhibit in attempting to transmit their acquired knowledge and skill. Industry usually does not select line supervisors because of their ability as teachers, yet the problem of training new employees for the job assigned is usually the responsibility of the foreman.

If your foremen are not, individually or collectively, good teachers, you may need to assign a specialist to this important phase of the control of labor costs. If your line supervision has too many duties that will interfere with or detract from a thorough job training, then assign a qualified, understanding, fully trained employee to act as instructor. This is particularly desirable if you are making a fairly considerable increase in your force in a short period of time. It is true that you will lose some, possibly all, of the output of the operator selected to do the instructing, but the acquisition of knowledge is essential to good performance and few short cuts are effective.

Safety

In many states, minimum standards of safety are a legal requirement. If state laws are adequately enforced, reasonable protection is assured employees.

Progressive organizations have found that maximum safety standards are profitable. You benefit by lower insurance costs, regardless of whether your coverage is by an insurance carrier or through self-insured funds. This lowered insurance cost can be directly measured, but there are other valuable aspects of an adequate safety program. Today high speed machinery is in use or in prospect in most industries. To fully realize the possibilities of modern equipment, maximum safety to operators is a prime requisite.

No one will question the need for seventy miles per hour brakes when our motor cars are equipped with seventy miles per hour engines. It is just as essential that we carry our safety ideas into every operation in the plant as it is to preach and practice safety on our highways. We will probably pay just as much for lack of safety as we will for adequate safety and the profit possibilities will all be with the safe, not the sorry, plant.

Housekeeping

Good housekeeping, if not essential to safety, is certainly its hand-maid. Housekeeping includes something more than a place for everything and everything in its place. Good housekeeping does not

sanction delaying reasonable maintenance until prosperous times. Sometimes it is highly desirable to accelerate maintenance when business volume is below normal. Certainly we should not let the house we live in fall down because there are a few rooms we are not using.

Good housekeeping should include all the cleanliness you can afford. Your labor costs will respond favorably to regular cleaning of the work areas and equipment, to clean window and sanitary toilet facilities. Pride in performance is difficult to obtain or maintain in uninviting surroundings. Probably you can't keep all cutting oil off the floor in the screw machine department, but if none of it is ever removed, you can hardly criticize carelessness or sloppiness in other forms appearing in the department.

No brief is offered here for lace curtains at the plant windows, but good housekeeping will help maintain an appreciation of quality that can be identified in your operating statement by a reduction of spoilage.

Employment Stabilization

Social security legislation has emphasized the interest in security of income. It is one piece of legislation whose objective seems to be rather generally approved. It may have added to your accounting problems, it certainly has added to your costs, but in some form or another unemployment insurance and old-age benefits are here to stay.

If industry as a whole had achieved a fairly high degree of stability of employment, it is doubtful if such legislation could have been enacted. Some states have provided for stabilization credits and it is to be hoped that all states will adopt such a policy. Here lies a magnificent opportunity for industry to make a most important contribution to the general welfare. No organization is too small to contribute something to the stabilization of employment.

It is out of the question to offer any general solution to a problem so vast and so diverse but the solution, at least in part, is possible if every organization in this country would undertake to minimize the fluctuations of employment in their own operations. Generally speaking, these fluctuations are both seasonal and cyclical. Accurate historical information, sound market analysis and careful manufacturing budgets have accomplished important results in minimizing seasonal unemployment for a number of well known companies. Research and development are the tools with which industry can work against the effects of cyclical trends.

There has always been a market for new products and new services. Industry should be constantly developing its fields of service to

society so that new products can be offered when old products cease to attract consumers. Stabilization of employment is of real importance to industry. We are all consumers as well as producers. If we cannot produce we cannot consume, and the cycle of commerce is thrown off its path.

Industry must apply its abilities and resourcefulness to the solution of this problem or ultimately submit to more and more regimentation. If we can eliminate or minimize the valleys and peaks of unemployment, we can contribute as much to future progress as has been realized from the apparently inexhaustible resources of our technical knowledge in the past one hundred years.

Labor Saving

Beginning with the so-called Industrial Revolution, associated chronologically with the application of power to manufacturing or converting processes, there has been an increasing pressure from the consumers of goods for lower and lower costs. Out of the depths of every depression has come some contribution to the satisfaction of this demand. Stated another way, industry has been constantly forced to reduce the physical content of its products in order to survive.

Many of the gains thus far recorded have been converted into more leisure as evidenced by the shortened work day and the shortened work week. The residue of these gains takes the form of more goods consumed per capita and higher standards of living. Certainly we want to continue and, if possible, accelerate this movement.

The popular title for this process is the introduction of labor saving methods. Unfortunately, this label has been applied to prove, in some cases, that a few have been benefited at the expense of many individuals. It is characteristically human to fear the unknown and to doubt the wisdom of any change that may jeopardize our immediate position. The conflict here indicated must be kept constantly in mind, but not to prevent the elimination of waste or the adoption of improved methods. Progress in this direction is essential to industrial health, but we must remember that too much doctoring may impair, rather than improve our health.

Many factors can be utilized to introduce new methods while holding to a minimum the effects of labor displacement. Neither the depths of a depression nor the heights of a boom are the most advantageous periods for major changes. Neither of these conditions are consistently predictable, but at least we are fully aware when they occur. The pessimist will claim that we are always approaching a

depression, the optimist that we are always approaching a boom; the realist recognizes that the forces creating both are constantly at work.

Possibly we can use unavoidable low spots to plan major changes and introduce them when the expected improvement materializes. Certainly we can teach our employees new skills as the occasion demands, if the improvements in our methods result in increased volume and permit complete readjustment to the change in our own organization.

Job Evaluation

One important contribution to the control of labor costs has been the recognition that variances in skill requirements occur in any manufacturing organization. This fact is taken into consideration in standard cost procedure, not only to establish standards, but to identify variations resulting from the use of higher or lower paid skills. The use of job analysis and job evaluation seems a logical outgrowth.

In the past two or three years, the use of this tool of cost control has been discussed rather widely and detailed plans have been very ably presented. In one presentation of the subject, the speaker predicted that the use of job evaluation might easily become a legal requirement, possibly in connection with wages and hours legislation.

The objective of job evaluation is the solution of one of the oldest problems in industry, that is, the distribution of the total wages paid in proportion to each employee's contribution to the business. Job evaluation recognizes skill requirements, education and/or training, responsibility, physical effort, working conditions, etc., and by careful analysis and comparison establishes relative values for each of these elements as they occur in a work assignment.

These relative values are so constructed that all work assignments in a plant, in some cases in a company, are directly comparable. This direct comparison makes possible sound wage administration equitable to both the employee and the business. Job evaluation insures impartial administration of the wage policies of the organization.

Wage Plans

Wage plans have been written about, analyzed, discussed, adopted, modified and abandoned in such numbers that any fresh approach is difficult, if not impossible. History records an industrial code as early as 2300 B.C. that was evidently intended to end the discussion of wage plans.

This spring, Mr. A. E. Werolin of McKinsey, Wellington and Company included these remarks in a paper presented to the Binghamton Chapter: "I believe that we must place less reliance upon wage incentive plans in order to obtain effective control of labor costs. I do not mean to imply that the use of incentives is declining, for on the contrary, there seems to be a definite trend toward the increased use of some type of incentive plan." Mr. Werolin further stressed the desirability of the wage plan being simple in form and clearly understood by those affected.

The possibilities of a minimum annual wage have been widely discussed. A recent convention of a national organization presented several case studies on this subject and the several businesses reporting felt that labor costs had, in every case, shown a trend downward.

A guaranteed annual wage is an extreme departure for most industrial organizations, but the evident popular approval of earnings not immediately influenced by quality or quantity of output has revived interest in the use of straight hourly, or so-called "day-work" rates. Management's objection to day work has usually been directed at the absence of individual incentive, yet at the other extreme, individual incentive has been depended upon for many results beyond the scope of any wage plan.

Industry is increasing the employment of specialists in machine design, tool design, plant layouts, material handling, machine operation, and work simplification to supplement the knowledge and experience of the foreman. This trend is directed toward the removal of all obstacles from the path of a predetermined result. As this objective is approached, the value of immediate incentives in the wage plan is reduced. Where operating time is almost entirely outside the control of the operator, i.e., fully automatic machinery or fully conveyorized operations, a day-work wage plan is entirely satisfactory.

Measured day work, as a wage plan, has been adopted by some organizations whose processes are not sufficiently repetitive or in sufficient volume to justify fully automatic equipment or conveyor processing methods. Measured day work utilizes standard time for each operation or process as a basis for comparison with the actual time required by the individual operator for the completion of a given task. Measured day work differs from direct incentive wage plans by delaying both the loss from temporary inefficiency and the reward for temporary bursts of speed. Promotions and demotions are arrived at from performance records over a sufficient period of time to insure true recognition of personal ability and effort.

A wage plan and its administration, to be generally satisfactory under today's conditions, should:

1. Distribute the total wages paid in proportion to the contribution of the service rendered to the business.
2. Guarantee recognition of personal ability and effort.
3. Permit full and unimpaired utilization of improved methods and processes.
4. Produce labor costs consistent with the industry, the product and the market.

CHAIRMAN AUSTIN: I might say at this point, gentlemen, that in arranging the program it was not possible to develop both the case study and general approaches to each subject under discussion. Mr. Bedell has done a splendid job, as Dr. Jackson did yesterday, in presenting the broad subject and the principles involved. I can assure you that Mr. Bedell's experience has been so broad that he will have no trouble in answering your specific questions as to the application of these principles. We will now have a discussion of Mr. Bedell's paper.

EDDIS JOHNSON (*Chief Accountant, Kellogg Switchboard & Supply Co., Chicago, Ill.*): With reference to job evaluation, I should like to know what methods are available. I have had some experience in trying to evaluate jobs in various departments and it usually comes down to a matter of opinion. A job in one department may be about the same as a job in some other department. Even though the jobs may be quite different, you may finally decide that they are worth about the same amount of money. Is there some scientific method by which we can check and measure what a job is worth?

MR. BEDELL: You are inquiring whether there are any fixed rules for job evaluation. Unfortunately, there are none that I know of. The subject is still, shall we say, an art rather than a science. An art is subject to empirical rules. Science usually has mathematical rules. However, if your job evaluation can be done by a qualified group which includes at least the foremen of the departments in which specific jobs are being analyzed, I believe that you can get a sound over-all comparative basis.

The paper to which I referred, which was published by the Society

for the Advancement of Management, does a very good job of explaining the methods of applying arithmetical values to the factors analyzed in each job. The sum of the arithmetical values can be compared after all of the jobs are analyzed. Job evaluation is usually done by selecting the high skilled and low skilled jobs in each department or work center, and evaluating each of them in relation to each other, and then relating those key jobs to jobs in other departments or other work centers.

J. P. COMPTON (*Assistant Secretary-Treasurer, American Asphalt Roof Corp., Kansas City, Mo.*): What has been the employee reaction to job evaluation, particularly in union shops?

MR. BEDELL: I know of no instance of employee objection to, or criticism of, a carefully and thoroughly worked out job evaluation program. One nationally known company has contracts with several unions and feels that job evaluation is very desirable to both employees and union representatives.

L. A. PEASE (*Assistant Superintendent, Milprint, Inc., Milwaukee, Wis.*): What are some of the chief objections of labor unions to wage incentive plans? Why do they disapprove of wage incentive plans?

MR. BEDELL: I would have to speak from hearsay. If any of you gentlemen on the floor would like to answer that question in my stead, I should be happy to have you take the stand.

MR. COMPTON: I can give you one experience. About the time the labor movement spread over the country we fell heir to it. Prior to that time we had had wage incentive plans. The business agent vetoed such plans, and for a year, during the life of the first labor contract, they were discontinued. When the contract came up for renewal, the employees of the company requested the return of the wage incentive plans.

MR. BEDELL: Thanks very much, Mr. Compton.

DOUGLASS M. BARROWS (*Assistant Secretary, El Dorado Oil Works, San Francisco, Calif.*): Following along this same labor union line, what would you do, so far as your selection of labor is

concerned, if you had to take everyone, from your common day laborers up to such technical employees as chemists, from the hiring hall, and take the first man they sent you?

MR. BEDELL: I don't think I can answer that one. It is a tough problem, if you have to take additions to your yard gang or chemists from the same source and let an outside organization do the picking.

MR. BARROWS: That is what we are up against on the Pacific Coast. I do not believe you people back here have the faintest idea of what labor troubles are.

MR. BEDELL: I hope you are entirely correct, sir.

MR. BARROWS: That is exactly what we have to do on the West Coast. We must take them as they come from the hiring hall, regardless of qualifications to do the job involved.

CHARLES P. KRIES (*Controller, Republic Flow Meter Co., Chicago, Ill.*): You mentioned a point in your paper about the adaptability of the employee to different types of work. My question is this: What would you do in the event that production is falling off in a particular department, making it necessary to close that department where employees are particularly well qualified to do the job, while there is another department where you have to put on additional men? Would you shift the employees from one department to the other, even though they are not so well qualified to do the work, or would you hire new employees and let the other people go? I am looking at this matter from three standpoints, the economy standpoint, the humanitarian standpoint and the labor relations standpoint.

MR. BEDELL: The addition of a new man into your organization is a great deal more susceptible to high cost, in my mind, than the transfer from another department of a man who is not familiar with the process in the new department. In the first place, we can assume that if he developed high skill on his own job, he is basically equipped to acquire skills. Therefore, it seems to me that it is foolish to try to obtain in the open market a commodity that you have in your own plant, and certainly I would recommend on any basis the transfer of

the employees if it is at all possible to adapt them to the new job. It seems to me that in the average plant the men are somewhat familiar with what everybody in the plant does. While they may not be able to do every operation, they certainly ought to be able to acquire new skills much easier than a total stranger in the organization.

You do not have the problem of assimilating them into the outfit. They are already a part of it. They feel the social obligation of doing a job as well as they can. You have a distinct advantage in that you are giving them a job, over the choice of no work and hiring someone else. You show a preference for them and you are entitled to expect better performance from them than you would from a stranger.

R. W. DARNELL (*Vice President, W. C. Ritchie & Co., Chicago, Ill.*): Just how does measured day work operate? How does it differ from other wage incentive plans?

MR. BEDELL: Measured day work is based upon sound standard times and comparisons of actual job performance with established standard job time using the smallest unit which does justice to the individual operator. That comparison is then the ratio of performance. The desirable administration of measured day work, I believe, is that you accumulate these day-to-day performance figures and over a reasonable period of time use them as a guide for promotion and demotion. You understand that the wage plan is a day-work wage plan, that you contract for the man's labor at so much per hour, per day, or per week, and therefore, the only incentive that is inherent in the plan is that if he does better than the standard performance, he will expect to be rewarded by an increase in the day rate.

Variations of this method have been used. One is that the improvement over standards is considered as a bonus pool and distributed over a period of time that is in keeping with the manufacturing cycle and seasonal condition of the business. Generally speaking, the objective of measured day work is uniform wage rates on an hourly basis and increases based on long-time performance. You may be interested in referring to the January 1, 1937 issue of the *N. A. C. A. Bulletin*. It gives you a little bit more of the philosophy of measured day work.

R. J. LOWE (*Controller, F. N. Burt Co., Inc., Buffalo, N. Y.*): What would you say should be the spread between the minimum and

maximum rates for female help? In your opinion, what percentage of bonus should be paid them?

MR. BEDELL: I can tell you what policy my own organization follows with regard to this subject. We have some work that is distinctly the type of thing that women do better than men. They are inherently more dexterous in that type of work. We pay the same base rates for women that we would pay for men on that type of job. In other words, for equal work, equal pay. Our philosophy is that equal work justifies equal pay regardless of sex.

H. C. SCHULTZ (*Secretary, E. E. Forbes & Sons, Birmingham, Ala.*): Shouldn't aptitude tests be the determining factor in the final selection of employees?

MR. BEDELL: Mr. Schultz, the use of aptitude tests is primarily to eliminate the sheep from the goats, to get rid of those people who cannot possibly qualify for the skills or type of work that you are employing them for. If the tests are sound, they should be the final answer to the selection from a group of otherwise equally qualified people. Let us say we have five applicants for one job. They are equally satisfactory physically. Their characters are all on a par, and their interviews with the personnel manager indicate that you could flip a coin for final choice without aptitude testing. Certainly the high performance man on the aptitude tests should get that job.

CHAIRMAN AUSTIN: We are scheduled to close this session at four-thirty. There is still time, however, for a few more questions on Mr. Bedell's paper.

WILL DOLL (*Auditor and Office Manager, Wardway Paint Works, Chicago Heights, Ill.*): Suppose you have a number of applicants for a job. One of the applicants has outstanding qualifications. He is too good for the job. It is probable that this job may not lead to the type of work that this person is entitled to for some period of time. What would be your reaction? Would you hire somebody who would fit into the position and stay there satisfactorily after being trained, or would you take this higher type of individual, holding out the lure of a better opportunity later on, with the possibility that he may be dissatisfied for some time?

MR. BEDELL: I will try to restate that question as briefly as I can. The question is: Is it possible to hire too much mental ability for a job? The answer is: Yes. On the other hand, if the job isn't an absolutely dead-end job, and if there is any possibility that the employee can be promoted, that he can have an opportunity to use his mental equipment, it seems to me that the highest possible mental capacity is desirable on every job that you employ for, particularly if you are bringing a young person into your organization at the lowest skilled job requirement, because frequently you have to employ on that level more mental ability than is needed for that particular job in order to get people who are wholly desirable from every other standpoint. The important thing is that you must know about that situation and the personnel manager ought to make it clear to the new employee that you are putting him on a job that he has to be satisfied with until another one opens up. See to it that the foreman he reports to understands that, and that the man himself understands it, so that the seed of dissatisfaction is not sown the first day he gets on the job and finds out he is wielding a pick instead of a sliderule.

CHAIRMAN AUSTIN: Gentlemen, I want to take this opportunity to say how much we of the Program Committee appreciate this splendid attendance, your fine spirit of co-operation and your lively discussion. It is certainly very encouraging and it is very stimulating to the speakers.

We have four more questions left on Mr. Bedell's talk. It appears that we may have a brief session after four-thirty, but I am going to carry out my promise and officially close the meeting then. Those who wish to remain will gather in front near the speaker's platform.

Carrying on with the general theme of cost control and this afternoon's subject of application of cost control to manufacturing, we will now consider the subject of "Control of Factory Overhead at Varying Volumes of Production." You will notice particularly that in the subject the word "cost" is left out. We say "control of manufacturing," which implies that we do other things than control cost. I think Mr. Bedell's paper was a fine example of what we as cost accountants and controllers can do in addition to devoting ourselves to merely the accounting side of this problem.

It gives me great pleasure at this time to introduce to you our next speaker, Mr. Edward J. Hanley, Secretary of the Allegheny Steel Company.

CONTROL OF FACTORY OVERHEAD AT VARYING VOLUMES OF PRODUCTION

E. J. HANLEY

Secretary, Allegheny Steel Company,
Brackenridge, Pa.

I HAVE been assigned the topic "Control of Factory Overhead," and the Program Committee sent me a splendid general outline of principles of cost control which I have assiduously attempted to keep in mind in drafting my paper.

I was once told by one of my wise teachers that the most important thing to do in solving any problem is to state it properly. Many times I have had reason to remember this lesson. When I am particularly perplexed about something, I find that the most useful thing to do is to go back and attempt to formulate in words just what I am attempting to do.

Definition of Terms

As I think about this topic, the control of factory overhead, I am tempted first to define "factory overhead." I will define it as expense incident to the facilities necessary to manufacture a product, as contrasted with direct items of material and labor which relate directly to the product itself. This definition infers that any measuring stick that we set up as a standard must give consideration to the facilities for manufacture as well as the product itself.

As I think of the word "control," I wonder what it means to you gentlemen. To some, no doubt, it means elaborate reports in which are recorded comparisons with some standard, so that the president has summarized for him the entire story. Of course he expects his assistant to have more information of an explanatory character. The assistant, therefore, has more voluminous reports and so on down the line, each responsible person having more detailed statements of past performances, perhaps compared with a standard, with all reports presenting historical information, current history possibly, but history all the same.

I wonder to how many of you it means the approval or the vetoing of an order for some cotton waste, or the sending home of Bill Jones, check number 75327, because there is no work for machine center "A" this afternoon with the result that the department can get along

with one less battery truck operator. This, I believe, is control of factory overhead. Please note that the controller in this instance is not the president but the factory foreman. I suspect that if the truth were known, many of us so-called "controllers" do a rather poor job of controlling the overhead in our own accounting and cost departments.

Experience with Variable Budgets

Having outlined what I have in mind as I talk about control of factory overhead, may I digress for a moment and explain what experience I have had with variable budgets. My acquaintanceship dates from 1928 when I helped set up some supervisory bonus plans on the basis of which foremen were paid for expense performance. The so-called budgets were established entirely on the basis of past history. They were based on a period when, as I now believe, indirect labor efficiency was pretty low and the shop was not busy. As a result the allowances established were too high for low volume but too low for high volume. Did those plans require doctoring as the 1929 peak was reached!

Fortunately the plans disappeared with the 1929 prosperity and they never did come back with monetary payment connected to them. However, the budget plan itself has been further and further developed with great success in that company.

Problem Is One of Controlling Number of Indirect Employees

It is worth noting here that supply material accounting in most plants is not sufficiently developed to permit really accurate measurement by variable budget methods. It is not that budget standards cannot be established, but rather that the recording of material used is defective in most plants. To remedy this requires the establishment of elaborate stores routines with the attendant requisitioning which makes for much clerical expense. I have seen evidences of repeated ordering of such small quantities of material that I have almost decided that a different approach is desirable for this cost element.

I do believe that foremen can be impressed with the necessity for seeing to it that their people use tools and supplies economically. If this can be accomplished, only one other step is required to insure control of indirect material, that is, the control of the number of indirect employees, which brings me back again to the variable budget.

The Original Budget

As I have said, I first began to deal with budgets as such in 1928, and I have been playing with them off and on ever since. In previous national conventions, F. V. Gardner, formerly of the General Electric Company, has described some of the techniques that were developed during the depression years. I respectfully call your attention to his papers appearing in the 1935 and 1937 Year Books.

I really could talk a fairly good budget story in the year 1934, when I was appointed an assistant superintendent in a manufacturing department and suddenly found myself on the other end of the budget picture. I might say also that while the department had a variable budget for indirect labor, it was hopelessly behind and no one paid any attention to it. Our first job, therefore, was to overhaul the budget, and overhaul it we did. We found it adequate. After it had been reviewed and analyzed with the interested foremen, it appeared largely as you see it on Exhibit 1. We did not have our direct labor load broken down to production centers, nor did we have the budget or the reports of performance so segregated at first. As you may suspect, that was what was wrong with it. (May I say parenthetically at this point that direct labor was largely piece work and hence a stable base for our expense standards.) Our budget actually had the names of all the clerks, foremen, inspectors, etc., shown in detail. We had planned when they would be taken off the payroll, when they would work 28 hours, 40 hours or some other period of time.

Basis of Original Budget

Exhibit 1 shows the complete indirect labor budget for Department X, the number of persons on the payroll, the hours they will work and the money they will earn. The three capacities at which expenses were estimated gave us a full speed (but not peak) point, a mid-point of 50 per cent of capacity, and a minimum of 20 per cent. The total indirect labor and the amount of constant indirect labor included therein is shown for each expense account. The ratio of the difference between total indirect labor and constant indirect labor divided by the direct labor at each of the three points works out to approximately thirty-seven and a half cents. Thus for each dollar of direct labor the department has an allowance of thirty-seven and a half cents for indirect labor. (Letter references on Exhibit 1 relate to Exhibits 2 and 3. Exhibit 4 is complete in itself.)

You will note that the budget contemplates a single constant down

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to 20 per cent of capacity and another for operations below this point. These constants actually might be in a state of continuous adjustment. By this I mean that if we were sure that a violent and permanent decline in business was coming, we might begin to overhaul the standby organization long before reaching 20 per cent capacity, the point at which the exhibit indicates that the earthquake occurs.

Every Friday we received a report from the payroll department showing us what our performance on the budget had been for the week ending the Friday previous. I must confess that after our review of the budget and conferences with our foremen, we still did a rotten job. The department, I might say, had a very short production cycle and our load was varying a great deal from week to week. Obviously we had not found the answer. While the tool seemed to be all right, it was not working; the front office was not controlling expense.

The Revised Budget

We reconsidered our problem and found that we had to get out on the floor with it; we had to get information into the foremen's hands. If we were to lick this varying load business we had to get the foreman to plan his activities in advance.

We went back to our details and recast the budget. First we analyzed our direct labor as shown on top of Exhibit 1. We broke it down further as shown in the analysis of normal labor load in Production Center A, Exhibit 2. Then we broke down the variable expense only for each production center including clerical departments, and related the variable expense in the former departments to production center direct labor and in the latter departments to department direct labor, as indicated also in Exhibit 2. We then had as a working budget the figures shown on Exhibit 3. Please note that the front office took unto itself all the constant expense, all the supervisory variable expense, and such other variable expense as affected the department as a whole.

Advance Planning on Weekly Basis

We were then ready to go and we worked in this way: John Allen, in charge of Production Center A, sat down on Thursday morning and figured that for the week beginning Friday morning he would operate his machine groups as shown in Exhibit 4 under the heading

EXHIBIT 2
ANALYSIS OF VARIABLE BUDGET

(a) Analysis of Direct Labor			(c) Analysis of Prod. Center A Variable Exp. @ \$2,700/week D.L. (f)		
<i>Approxs. Capacity</i>	<i>Zero</i>	20%	50%	80%	
Prod. Center A.....	0	\$ 720	\$1,660	\$2,700 ^(b)	
Prod. Center B.....	0	260	610	1,000	
Prod. Center C.....	0	210	490	800	
Prod. Center D.....	0	310	740	1,200	
					<u>\$5,700</u>
	0	\$1,500	\$3,500		

(b) Analysis of Prod. Center A Direct Labor			(d) Analysis of Variable Clerical Expense @ \$5,700/week D.L.		
	<i>Oper. @ hrs./wk.</i>	<i>@/hr.</i>	<i>Amt.</i>	Total Prod. Center A Var. Exp	
Machine Group (1) . . .	20	40	\$ 640	7½ @ 40 Hrs. 179	
Machine Group (2) . . .	11	40	352		
Machine Group (3) . . .	6	40	192		
Machine Group (4) . . .	3	40	80		
Machine Group (5) . . .	3	40	67 ^c		
Machine Group (6) . . .	3	40	70 ^c		
Machine Group (7) . . .	9	40	364		
Machine Group (8) . . .	5	40	280		
Machine Group (9) . . .	9	40	372		
Machine Group (10) . . .	10	40	400		
					<u>\$382</u>

(e) Analysis of Production Expense @ \$5,700/week D.L.		
Production Clerks	3	\$ 86
Stock and Order Clerks	3	96
Stockkeepers and Helpers	8	219
		<u>\$401</u>

Make and Resize Dies.....

\$393

"Direct Labor." He developed this schedule from his knowledge of orders on hand and the general trend. He knew, for example, that he would continue to operate all machines in group 1 on a single shift. He knew also that while he would run group 2 full time, he would pull group 3 down to two shifts, etc. After this review of his pro-

EXHIBIT 3
WORKING BUDGET

Normal Labor Load \$5,700 D.L.

<i>Responsibility of</i>	<i>Description</i>	<i>Constant</i>	<i>Ratio to Dept. D. L. Variable</i>
Dept. Supt.	All Constant Expense,	\$1,133	..
	Supervisory Variable,	..	2.1¢
	Misc. & Service Labor,	..	
	also Overtime & Training	..	2.8¢
Chief Inspector	Variable Inspection Exp.	..	3.1¢
Production Super.	Prod. & Stockroom Exp.	..	7.1¢
Chief Clerk	Other Clerical Exp.	..	6.7¢
Foremen Prod.			
Centers A-D (f)	Variable Prod. Center Exp.	..	15.7¢
TOTAL		\$1,133	37.5¢

(f) Variable Production Center Expense

<i>Prod. Center</i>	<i>Normal D.L. Load</i>	<i>Ratio to Prod. Center D.L.</i>	<i>Ratio to Dept. D.L.</i>
A	\$2,700	21.2¢	10.0¢
B	1,000	11.1¢	2.0¢
C	800	10.0¢	1.4¢
D	1,200	10.8¢	2.3¢
	\$5,700		15.7¢

ductive labor schedule for the coming period, he notes that the expected load will be \$1,800 or two-thirds of his normal load of \$2,700. On this basis he knows that he must reduce his variable expense load by one-third if he is to meet his budget.

He reviewed his expense labor plans and decided that he would run the die room with five people, and that he would take one man off the machine cleaning job, thereby letting one group of machines go a week without cleaning. (He can do this because they are not running at normal capacity.) He decided that the scrap and supply

group could be cut to three men, but truck operators must be kept at four and a half because the machines that are operating handle a large volume of product. He figures he will have to keep a sweeper on for

EXHIBIT 4

PLANNED EXPENSE—WEEK BEGINNING 3/25/28

Total Department Production Center	D.L. Week 3/25/28	Allowed Var. Exp.	Planned Expense
A	\$1,800(a)	\$ 382(c)	\$ 406(b)
B	500	55	50
C	600	60	50
D	900	97	90
Inspection	\$3,800	\$ 594	\$ 596
Production Supervisor	\$3,800	\$ 118	\$ 120
Chief Clerk	3,800	270	290
Supervisory Variable	3,800	255	246
Ser. Labor, Overtime, Train., etc.	3,800	80	80
		106	100
Constant		\$ 829	\$ 836
		1,133	1,133
Total (3,800 X 37.5 = 1,425 plus 1,133 = 2,558)		\$2,556	\$2,565
Production Center A	# Men	Hours	Rate
(a) D.L. Machine Group #1	10	40	80¢
#2	11	40	80
#3	4	40	80
#4	2	40	67
#5	2	40	70
#6	7	40	90
Other	?	?	?
Total			\$1,800
(b) Indirect Labor			
Sweeper	1	40	50¢
Truck Operators	4½	40	62½¢
Truck Scrap & Supply	3	40	50
Clean Machines & Pits	1½	40	55
Service Conveyor	3	40	50
Make & Resize Dies	5	40	60
Total			\$ 406
(c) Allowed Indirect Labor \$1,800 X 21.2¢ =			\$ 382
Excess of planned expense over budget			\$ 24
(d) Clerical Expense (Chief Clerk)			
Direct Labor (All Production Centers)			\$3,800
Allowed variable clerical expense			\$3,800 X 6.7¢ = \$255
Planned Clerical Expense			
Cost Clerks	2(32)	\$ 52	
Shop Clerks	6(40)	174	
Wage Rate Clerks			
Other Clerks	1(32)	20	
Excess of budget over planned expense		\$ 246	\$ 9

40 hours until such time as he reduces hours for all machine groups. He figures that he can also take one man off the conveyor job. He then finds that his planned indirect labor expenditure for next week

will be as shown under indirect labor on Exhibit 4. You will note that he will exceed his budget by \$24.

Alternative Decisions Possible

Now, he might bring this plan of operation into the office and explain that circumstances are such this week that he cannot reduce his battery truck operators by enough to bring his expense into line. He might explain that with such and such machine groups operating it is impossible to operate without two trucks on both day turn and evening turn, and that he cannot get down to one truck on evening turn until the direct labor schedule is changed.

He might point out, however, that he could run certain machine centers more fully and so take advantage of the indirect labor available. If so, and if the condition of finished stocks would permit it, we might decide to do as he recommended. On the other hand, we might prefer to let him run \$24 behind, and we will assume in this case that we did.

Budgeting Other Departments

Referring again to Exhibit 3, you will note that the other production foremen have also planned their operations although the information is not shown here in detail. Total estimated direct labor for the department is seen to be \$3,800 for the coming period. Let us say that this information is available at noon of the day before the beginning of the payroll period.

The estimated department direct labor is passed on immediately to the chief inspector, the production supervisor, and the chief clerk. These supervisors then plan their expense in the manner followed by the chief clerk as shown at the bottom of Exhibit 4. In this manner the entire expense labor expenditure for the department is planned.

So far as the clerical expense is concerned, no attempt is made to vary it with the small swings in direct labor load. Obviously, if a clerical budget is overexpended for any considerable period, definite action is indicated and is taken after due deliberation with the department superintendent.

Please note that as a result of this approach to the matter of expense control, we, in effect, budget our operations every single week in advance. This, I maintain, is the way to control because our moves are based on what is happening currently and not on what has happened.

Workability in Theory and Practice

Having brought you along this far, let me go back to show you why the budget will not work. You know, of course, that it is very easy to find people to point out such things to you. Generally, I would like to add, if such persons expended one fourth as much energy trying to make things work as they do hunting reasons why things won't work, none of us would have any trouble.

You will note that the allowance per dollar of direct labor for production center A is twice the allowance for any other center. Hence, if only center A runs, the over-all budget allowance for the department will be insufficient. Conversely, if all centers except center A run, the department allowance will be excessive. (The department allowance is based on the over-all formula.) This is true and life is too short to try to carry this budget detail down to centers in a large plant except in memorandum fashion within a department as I have outlined. The fact of the matter is that the department is a unit and while one center may run more fully for a short period than another, operations will in the end average up and in the meantime the department superintendent will have ample explanation for his performance.

Budget standards, however, should be revised as frequently as necessary. Adjustments should be made for the addition of any new equipment or improvements that affect either direct labor or indirect labor as they occur, because the standard of the type I have described is a living thing that we work to constantly.

Plan Has Worked

You may wonder how this general arrangement works. I can testify from experience that it has worked excellently. We had a foreman, a foreigner, who never did quite master the intricacies of the English language, who proudly brought the "Budge" to us each Thursday and anxiously picked up his report on the following Tuesday, comparing in detail his actual performance with his estimate. All of our foremen picked up the ball, so to speak, with this scheme of operation and carried it. The department immediately snapped into line. I would like to add that the approach was developed in 1934 and that a few weeks ago I had occasion to correspond with the managing engineer of the department in which it was applied. The plan is still working as originally established and the department for the first four months of 1938 is within its budgeted allowance.

Controlling Maintenance Expenditures

I have said nothing whatsoever with regard to control of maintenance expenditures, but the approach may be much the same. Statistical surveys must be made to determine the ratio of maintenance labor to direct labor. Very largely, I believe, it is necessary to rely upon past performance, and because of the difficulty involved in gauging the efficiency of maintenance labor through observation, supplementary records showing expenditures by groups of machines or even by the individual machines themselves may be very useful in carrying budget allowances forward and correcting any errors introduced through the use of historical information.

In general, I believe it will be found that the comparison of actual and budgeted expense for the maintenance function shows a greater variation than is the case with indirect labor, and the smaller the center covered by the maintenance budget, the worse will be the fluctuation.

On the average, however, it is reasonable to expect a department over a period of time to remain within a variable budget maintenance allowance predicated on volume, as measured by direct labor or some other satisfactory indicator. The budgeted amount for maintenance may be determined on the basis of production center labor forecast as described previously and as shown in the exhibits.

A record of maintenance expenditures by machine groups (or even individual machines) or some supplementary analysis should also be maintained, I think, not so much for day-to-day maintenance control, but to supply the answer to the question of when to discard equipment. Such a record may be useful, also, in that it may emphasize the weak points in present equipment, thereby occasioning redesign with a consequent reduction in maintenance costs. Once more, however, I am beginning to confuse cost reduction with cost control. Of course these two phases of management go hand in hand and one can not do a good cost reduction job unless expenditures are currently being controlled. Also, knowledge of present costs and expected costs are necessary to exercise control because cost reduction translated into control terminology means revisions of standards. Nevertheless, there is a distinct difference in the mechanics of control as such and analysis which leads to expense reduction.

Unusual Expenditures

Of one matter I have so far said nothing, yet it always comes up as a bothersome detail in a variable budget such as I have described.

This is the matter of expenses such as may be incurred for rearrangement of equipment, or perhaps the extra cost of overhauling and revamping some clerical system, or some such similar unusual expenditure having little or nothing to do with the immediate volume of work in the shop.

I will agree that the expense of such programs cannot well be incorporated in a variable budget formula. If any attempt is made to include such average amount in anticipation of expenses to come, the amount of variation from budget allowance becomes a deceptive figure, for it includes an amount that is building up in anticipation of future expense. For the individual fully acquainted with all details this might be all right, but to any one else it is confusing. Therefore, other means have been devised to take care of this type of expense.

Presumably, any expenditure of this nature that is of importance will have been analyzed beforehand and some sort of approval obtained. In this connection, estimates doubtless have been prepared of costs of proposed changes and savings to be anticipated. This being so, there is no reason why the estimated costs should not be included as budget allowance. This, incidentally, is in a way a two-edged sword in that the department head will endeavor to obtain a fair cost estimate since expense performance hinges on the allowance being adequate. Unless this is so he might be tempted to furnish a minimum estimate so as to indicate high anticipated savings.

With estimates available for such unusual jobs, the weekly expenditure may be matched by identical amounts in allowed expense until such time as the estimated allowance is entirely offset. If there is any over-expenditure after this has happened, departmental performance may be penalized to that extent.

This same technique may also be used to advantage in connection with the maintenance budget. In that event, maintenance expenditures might be divided into two classes: (1) routine repair work to be controlled through the use of variable budget standards, and (2) periodical overhaul to be controlled through the use of standards established for the individual jobs in the manner just described.

Controlling Capital Expenditures

This really concludes my discussion of that part of factory overhead that is subject to the control of, and I think is principally in the hands of, the factory foreman. I think he is the most important link in the whole picture and we sometimes forget that we should help him

prepare in advance the necessary facts to enable him to make his expenditures and run his job in accordance with a sound plan.

And now we come to a consideration of some of the phases of control of factory overhead that rest pretty much in the hands of the foremen's boss and his advisors. What we call fixed expense is variable in certain respects, as we well know. When we approve the purchase of new equipment, we are contributing to increasing and hence varying fixed charges, since we will incur as a result of the purchase increased depreciation, maintenance, power expense, taxes, etc. Furthermore, since mechanization tends to convert variable labor cost into fixed cost, we are increasing fixed charges and simultaneously making it less possible to control factory overhead under conditions of decreased volume which always come. Approval of requests for appropriations for manufacturing plant is, therefore, very serious business and something that should not be done perfunctorily.

My remarks here are so obvious that I hesitate to make them, yet I know of nothing else to say with regard to extensions of plant excepting that the proposal should cover equipment to make products:

- (a) For which there is economic justification and a reasonably good future. (None of you would like to invest in a plant to make buggy whips.)
- (b) For which capacity for normal volume is lacking.

If it is a matter of cost reduction through discarding the present plant, the anticipated savings based on normal demand (not capacity of equipment or quantity made last year) derived by comparing anticipated costs with costs under present methods, should be sufficient to pay for the new equipment in a reasonably short time.

As for controlling expenditures for plant once approval has been granted, and for keeping track of plant items once they have been installed, I can do no better than refer you to Mr. J. H. DeVitt's paper delivered at the Convention in Cincinnati and appearing in the 1936 *N.A.C.A. Year Book*. Mr. DeVitt's paper covers this matter thoroughly and contains many ideas that I have found particularly useful.

At this point I would like to say that plans for varying depreciation amounts with volume do not, in my opinion, come within the scope of this paper. I am mentioning them only because someone may raise the question. I believe that plans of this kind are sound and may be justified. They seem to be growing in favor. I will

say this, however, that such plans, while they tend to minimize losses in bad times at the expense of profits in good times, do not qualify as methods of controlling factory overhead, for in the last analysis they are purely and simply matters of bookkeeping.

The Problem of Idle and Excess Facilities

Because we find it absolutely impossible to maintain perfect control over expenditures for plant, we always find ourselves with idle and excess capacity on our hands. Most of us, I believe, are gifted with excellent hindsight, and we have all marveled no doubt from time to time at how operating people could be so dumb as to purchase certain white elephants which either would not work, or which were not needed and which became idle or excess facilities. On the other hand, those of us who have personally prepared appropriation requests and obtained approval for equipment after test runs and no end of investigation and inspection have probably guessed wrong sufficiently often to appreciate how much more difficult it is to look ahead.

Of course we cannot deal with idle plant unless we know it is idle, and that decision is a hard one to make. Except for the obvious "lemons" and instances when demand for a product is definitely decreasing, I seriously doubt that anyone is qualified to say that this or that equipment will not operate again. As evidence of this fact I would like to recount to you the story of a design change in the manufacture of a product that occasioned the establishing of a new production line. New equipment was purchased and such of the old equipment as could be adapted was re-erected in the line and the unsuitable machinery was classified definitely as idle plant. Within six months, over half of this equipment was back in use in the same production line. All of which tends to prove that one may splash a lot of water in handling idle plant expense without gaining very much.

Experience and Conclusion Regarding Idle Plant Capacity

I have had some experience with idle plant accounting which permitted idle equipment to be tagged and the value transferred to idle plant account, in which case the department was relieved of depreciation. The argument occasioned over whether or not tags should be applied, resulted in the abandonment of the plan. The same plan permitted the inclusion of floor space in idle plant provided there were 5,000 contiguous square feet idle. At one place auditors found the stair towers of a building in idle plant. When asked about this,

the accountant in charge said, "The instruction says 5,000 contiguous square feet. This is contiguous vertically and the instruction doesn't say it has to be horizontally."

As a further result of the 5,000 contiguous square feet rule, we finally reached the conclusion that manufacturing departments in order to avoid having fixed costs charged against their department, were tempted to spend money moving equipment that they otherwise might leave in place. For this reason we revised our accounting for idle plant expense. While we permitted the elimination of such expense in the computation of unit costs, we did not remove it from the overhead of the department having the facilities in question until the facilities were definitely disposed of.

My conclusions on idle capacity, therefore, are these: Dispose of the equipment and get rid of the facilities when you are sure they are definitely idle, because a shrinkage in capacity will occasion a shrinkage in organization and hence a shrinkage in the expense of standby labor as well as in taxes. Furthermore, any reasonable amount of salvage is so much more available working capital. Eliminate idle plant expense from unit costs, because it is not truly a cost but actually a loss. I would be inclined to stop here, however, and for the reasons I have mentioned I am not sympathetic with accounting procedures that absolve responsible individuals from their sins.

I would like to make just one more point. The fundamental accounting method of classifying all expenditures into several major groups sometimes causes us to think of costs entirely in terms of these groups, just as though they are unrelated things rather than interdependent parts of an integrated whole. This smacks again of analysis as contrasted with control, but we should not forget that it is possible to decrease labor costs and material costs and increase factory overhead, and by this change reduce total cost.

Any procedures for control of factory overhead that do not permit of adjustment to give proper effect to such changed conditions, are definitely faulty and are a hindrance rather than a benefit to business.

CHAIRMAN AUSTIN: Gentlemen, I know you will agree with me that Mr. Hanley's address has been very much worth while. Our time is getting close to the margin that I mentioned. Several additional questions on Mr. Bedell's talk have been submitted. Mr. Hanley will have the remaining time until four-thirty, at which time this session will officially close. At five-fifteen sharp we will absolutely close the meeting because we must make the room available then for

the hotel staff to get ready for this evening's entertainment. Let's have your questions on Mr. Hanley's paper now.

MISS S. M. GORDER (*Accountant, H. S. Rock & Co., Minneapolis, Minn.*): If it becomes apparent on Tuesday of a week that your plant direct labor load will not be realized because of machinery breakdown or cancellation of orders, what is your procedure? Do you abandon your budget for the week or adjust it in some other manner?

MR. HANLEY: I should like to compliment the young lady on her question. The foreman of the production department where the breakdown occurs, would doubtless send home as many of his expense employees as he could in line with his budget at lower volume, and it is very probable that the chief inspector would also be asked to bring his organization into line as well as he could. The storekeepers and helpers would probably be brought into line too, but it is very doubtful if anything would be done with the clerical group. They would probably work as originally scheduled, and for that reason there might be a failure to meet the budget for the period.

EDWARD P. GILLANE (*Works Accountant, Underwood Elliott Fisher Co., Bridgeport, Conn.*): In your experience in setting budgets for shipping departments, have you noticed any tendency on the part of industries in making purchases to specify a certain size of reversible carton, which they may use, after receiving their goods in it, for sending out their own shipments, thus decreasing their shipping department expense?

MR. HANLEY: I do not know, in my experience, that that tendency is particularly noticeable. If the purchaser were attempting to impose a special type of container on the manufacturer, it would tend to increase the cost of the shipping department. On the other hand, it would tend to decrease the cost to the purchaser. However, I could not say that I have noticed any tendency in that direction.

R. J. LOWE (*Controller, F. N. Burt Co., Inc., Buffalo, N. Y.*): I understand that the maintenance department services the production departments. Did you find that the budget of the maintenance department was better controlled by the foreman of the maintenance department or by having it under the direct charge of the production department?

MR. HANLEY: Actually, we had a maintenance group that was big enough to justify having a foreman in charge. We also broke our maintenance into two parts, routine maintenance and general overhaul jobs. The maintenance foreman was expected to control his over-all expense and to keep the production foreman satisfied or at least quiet.

JOSEPH A. PETRICK (*Cost Accountant, Kellogg Switchboard & Supply Co., Chicago, Ill.*): I should like to know how you would budget the repairs of tools, dies and fixtures.

MR. HANLEY: As a matter of fact we budgeted repair expense for tools, dies and fixtures as a part of the production department expense. The production department uses these tools and dies, and largely on the basis of past expense history, we built up an allowance for tool and die repairs. The repair work may have been done by the tool room and the expenditure charged against the particular department, but the department foreman was supposed to keep within an over-all allowance on his own direct labor volume with regard to his tool and die repair expense.

MR. PETRICK: Isn't that a rather dangerous practice? Do you not find sometimes that the volume of labor hours will go down and the repairs will go up? I think it is rather hard to budget in advance what the cost is going to be for repairing tools or dies because, unless you make an inspection of those tools, you do not really know what is required. I agree that we have to keep the cost down and have some control over it, but whether budgeting it on past performance is the best practice, I do not know.

MR. HANLEY: This last question was a comment to the effect that the cost of repairing the broken tools is one that should not be compared with standards based on past performance but rather with standards established for the job in hand. Each job is a problem in itself. With that I will have to agree. When we talk about fixing up this particular tool, such questions as its present condition, what happened to it, and what we will have to do to it are the important factors.

However, when we have a sizable department, and not this one tool but 200 or 300 tools that are in process all the time, with some repairs being made continuously, the aggregate cost of repair work

will, I think, be found to bear quite a definite relation to the volume of work going through the plant. The good old law of averages helps us out.

CHAIRMAN AUSTIN: It is now four-thirty. I am going to make good on my promise and declare this session officially closed. Before you leave, I want to take this opportunity of expressing our appreciation to our speakers.

For those who desire to remain we will go right ahead with our discussion. We will now have answers to Mr. Bedell's questions, of which there are quite a few, followed by further discussion of Mr. Hanley's paper.

Mr. Bedell, I have four questions here that have been sent to the platform.

Mr. L. E. Zastrow of Milwaukee asks, "Do you feel that the workers' efficiency increases during a recession period under a wage incentive plan?"

MR. BEDELL: I believe that question is more psychological than anything else. It is a tendency of human nature, I think, to stretch a job if it looks like the job is going to run out. I question whether in any recession you can expect an incentive plan to give you more output from an operator than you would get when the shop is busy. It is my experience that most of us work best when there is a pile of work ahead and we can not let down on the job.

E. H. Schultz of Wisconsin asks, "What method of labor control would you recommend when your total employment of approximately 3,000 is distributed over forty locations, ranging in size from 20 employees in the smaller plants to 400 in the largest unit?" As I interpret the question, Mr. Schultz asks what type of wage plan I would recommend.

E. H. SCHULTZ (*Assistant Controller, Carnation Co., Oconomowoc, Wis.*): What I am interested in is labor control and personnel work where a plant is too small to have a separate personnel department.

MR. BEDELL: The question, then, is whether an organized personnel department is essential in every location. Certainly, a unit of twenty people is very apt to be too small a unit to support a complete personnel department in all of its possible ramifications. Four

hundred sounds to me as though it could justify a separate personnel department.

Again I will have to give you my own opinion. It seems to me that it might be possible to train someone at each location, through a central personnel department, who would administer the general plan of personnel procedure. You could assign a trained person to each operating unit to follow the general policies and plans of a central personnel program and see that, insofar as the size of the unit would permit, the policies and plans would be uniformly and effectively operated and administered. In the small units, there would be a little division of labor, possibly someone below the level of the shop manager or the divisional manager who would be personnel manager, and also handle another assignment.

Mr. H. S. Rock of Minneapolis asks, "Would you advocate or favor paying under measured day work or under piece work, rates in excess of those required by a union agreement with your company?"

Mr. Rock, if your organization is that low cost unit in an industry which was referred to in a paper this morning by Mr. Cartmell, you can pay wages in excess of union rates as long as you maintain your position in the industry. On the other hand, if you are not in the favorable position of the lowest cost unit in the industry, then you may have to stick to union agreements to meet competition. After all, regardless of what may be said about industry, our first objective is to stay in business. It is a desirable aim to try to accomplish that. In meeting competition, it is up to you to decide whether you stay in business or not. The policy of American industry, as I have it from people like you fellows in this audience, is that we want to pay maximum wages to our employees. I think if we follow that theory, we are better off in the process.

Mr. David S. Hart, Canadian Industries, Ltd., Montreal, asks, "How would you apply the principles of job evaluation in the case of staff employees?" The job has been done by one large organization. I do not have an exact quotation to give you, but I understand that they have extended job evaluation to the position of president, which is probably all-inclusive. The technique is exactly the same, I believe. It should be just as possible to evaluate designing engineers as drill press operators if you know what is expected from a designing engineer and what it takes to become one, and are thus able to assign relative values to the factors recognized.

CHAIRMAN AUSTIN: Thank you very much, Mr. Bedell. Now we will have the remaining questions on Mr. Hanley's paper.

C. A. COUNIHAN (*Auditor, Weber Costello Co., Chicago Heights, Ill.*): Assume that your standard overhead rate is based on a direct labor cost of \$5,700 and that in the last few years you have been operating at \$3,500 direct labor cost. Assume further that part of the decrease is due to temporary general economic conditions, and part of it is due to permanent changes in your specific industry. What part of your overhead would you include in your unit cost and what part would you charge to unabsorbed overhead or to idle plant cost?

MR. HANLEY: If we are definitely convinced that because of the trend in the industry, we will never again operate this department with more than, let us say, \$4,500 labor load instead of \$5,700 labor load, I would continue to use overhead rates that would liquidate only at \$5,700 and I would build up unit cost on that basis. I would leave in the departmental expense, expenditures in connection with idle equipment until such time as the equipment was definitely disposed of. The idle plant expense would remain, therefore, as unabsorbed burden.

F. O. KANEHL (*Manager, Systems Dept., Arthur Anderson & Co., Chicago, Ill.*): Do you include in your inventory valuation the budgeted figures, or do you take your inventory as shown by the books?

MR. HANLEY: The inventory is calculated at normal rates. The normal rates are, in turn, predicated on budgets. I think I can say fairly that budgeted amounts are included in the inventory.

MR. KANEHL: In that case, if you were operating at a lower rate than normal, your burden rate based on your budget would differ from your burden rate at normal.

MR. HANLEY: In answer to that I may say that the normal liquidating rates are established as follows. We have \$5,700 direct labor expense. Normal rates are based on that volume of direct labor and the amount of expense at the \$5,700 point. We do include, in our inventory figures, expense at such normal rates. The amount of

expense would be the same, therefore, regardless of volume until such time as we change our conception of normal.

MR. KANEHL: Your rate might be changed this week, for example?

MR. HANLEY: The normal liquidating rates would not be changed. The normal liquidating rates would remain as established to liquidate at \$5,700. We change the control budgets from week to week, every Thursday, as a matter of fact.

MR. KANEHL: The amount of production at the \$5,700 level as compared with the \$3,500 level would mean that your unit cost would differ, would it not?

MR. HANLEY: No, unit cost would not differ. Unit costs are compiled on the basis of normal rates that do not change with fluctuations in volume. There would, however, be a difference between normal expense liquidated and actual expense. This difference would be charged to unabsorbed burden.

PAUL M. WEISS (*Assistant Works Business Manager, Crane Co., Chicago, Ill.*): Mr. Hanley, how many employees were there at your plant? How many employees were required to take care of the budget? Did the foremen work out the estimates or did the standards department do it?

MR. HANLEY: I think I can boil the questions down to this: How big a plant did this apply to, who really set the standards, and how did they do it?

This particular budget was worked up in a department where there were employed from 250 to 500 people. The budget was established by one of the assistant superintendents, aided by the cost clerk who was also chief clerk, in consultation with each foreman after review of actual expenses. In other words, history was leaned on quite heavily. Once the budget was established, it required possibly a day a week of one man's time to prepare reports of actual expense compared with the estimates that foremen had made previously. The budget had to be currently in everyone's mind. The assistant superintendent who is responsible for it might confer with any department head or any supervisor at any time regarding changes in his budget, but by and large it did not take very much nursing.

CHAIRMAN AUSTIN: We will have to close now to give the hotel people an opportunity to clear up the room for the banquet tonight. There are a few questions up here yet. If you gentlemen who have questions will come up I am sure Mr. Hanley will be glad to answer your questions directly. The session is now adjourned.

. . . The meeting adjourned at four-fifty o'clock . . .

SESSION V

**APPLICATION OF COST CONTROL
TO DISTRIBUTION
AND
ADMINISTRATIVE EXPENSES**

THURSDAY MORNING, JUNE 23, 1938

H. A. ANDERSON, Resident Partner, Scovell, Wellington
and Company, Syracuse, N. Y., *Chairman*

HARRY L. WYLIE is a graduate of Ohio State University. He has been associated with The Pure Oil Company of Chicago for the past fifteen years during which time he has served as Employment Manager, Office Manager, Assistant Personnel Director, Assistant Controller, and in his present capacity as Assistant to the Vice President and Secretary. In addition, Mr. Wylie has engaged in numerous "extra-curricular" activities. He is Assistant Professor of Business Organization at the Central Y. M. C. A. College and Lecturer in Business Organization at DePaul University. He is Vice President of the National Office Management Association, Vice Chairman of the Chicago Management Council, and Past President of the Office Management Association of Chicago. Mr. Wylie is co-author of *Practical Office Management*, published by Prentice-Hall last year, is on the staff of the magazine *American Business*, and carries on some practice as a management consultant.

ALBERT E. SAWYER, at the time he made this address, was associated with the Dennison Manufacturing Company, in general charge of the legal phases of the various state and federal laws regarding fair trade practice. Mr. Sawyer is a graduate of the Law School of the University of Michigan. He has had considerable practical experience in accounting and cost accounting gained in various automobile plants in Flint, Michigan. As Manager of the University of Michigan Hospital and Consultant for several of the larger hospitals of the country, he gained considerable experience in hospital management. After completing his work in law school, he became associated with the law firm of Cadwalader, Wickersham and Taft in New York City. He served as legal assistant to the late George W. Wickersham when the latter was Chairman of the National Commission on Law Observance and Enforcement. With the Dennison Manufacturing Company, Mr. Sawyer was engaged in study and supervision of methods and marketing, and related legal research. During the N. R. A. he was in charge of co-ordinating the activities of the company with respect to the various codes by which it was affected. He is now engaged as an assistant with the law firm of Wise, Whitney & Canfield in New York City.

APPLICATION OF COST CONTROL TO DISTRIBUTION AND ADMINISTRATIVE EXPENSES

PRESIDENT MARSH: This morning we will continue our study of cost control with a discussion of distribution costs and administrative costs. This afternoon we shall have a panel on the analysis of distribution costs. The Chairman for the sessions today needs no introduction to you. I believe Harry Anderson of Syracuse has been serving this Association longer than I have. He was Chairman of the Program Committee in New York, at the convention held at the Waldorf-Astoria. He has served as President of the Syracuse Chapter and as National Director for many years. He is a Resident Partner of Scovell, Wellington and Company at Syracuse, New York.

I take pleasure in turning the meeting over to the Chairman of the day, Mr. Anderson.

CHAIRMAN ANDERSON: As President Marsh has stated, the technical session this morning is to cover the control of administrative and selling costs. The afternoon will be given up entirely to a discussion of the control of administrative and selling costs in relation to the Robinson-Patman Act. If you have any questions that you wish to refer to this afternoon's panel, please turn them in to us and we will see that they are discussed. If you do not wish to turn them over to the panel, you will have an opportunity to present them from the floor this afternoon.

We will now proceed with the morning session. The first talk, "Control of Administrative Expenses," will be presented by Harry L. Wylie, who is well known in Chicago. He has been Office Manager, Personnel Director, Chief Accountant, and now is Assistant to the Vice President and Secretary of the Pure Oil Company. He is a writer, a teacher, and a recognized authority on the control of administrative expense. It gives me a great deal of pleasure to introduce Mr. Harry L. Wylie.

THE CONTROL OF ADMINISTRATIVE EXPENSES

HARRY L. WYLIE

Assistant to the Vice President and Secretary,
The Pure Oil Company, Chicago, Ill.

SALES budgets or sales quotas have been established in practically every line of business in order to control the first item which appears on the average income account, "Gross Operating Income."

Costs and operating expenses are controlled by the establishment of standard costs. The accountant and the industrial engineer have made material contributions in the field of operating cost control.

Taxes are generally beyond the control of management. In this, they are dependent upon legislative action and governmental economy.

Interest expense, discounts earned and discounts allowed will depend upon the financial policy of the company, general business conditions, and many other factors.

Depreciation expense treatment has been generally influenced by federal and state income tax legislation. Management does not have much latitude in the handling of this item of expense.

There remains one item of expense on which comparatively little has been said or written. This item, generally referred to as "Administrative and General Expenses," goes beyond the field of accounting and enters the field of office management. It is this item to which we will devote our attention for a few moments.

Office Procedures Are Influenced by Many Factors

Since 1928, we have tried to apply to the office, in varying degrees, the same science of management that has been applied to the factory. Increased demands upon the office by operating departments for more detailed information have made this imperative.

The office is the nervous system of the business. Through the office flow the various bits of detailed operating, financial and accounting material. These so-called bits of information (forms, reports and statements) must be recorded and co-ordinated so that management can gauge the operations.

It was for the various divisions of business that the office was originated. May we make it clear that the office is a service unit—organized solely to serve the operating, financial and accounting operations. Being an "expense" from its inception, *the effectiveness of the office*

is dependent entirely upon the degree of service rendered and the control which is exercised over the cost of the service.

The office should mirror the activities of the business. Increased sales, expanding manufacturing operations, tax legislation and governmental inquiries increase, in turn, the office activities.

Methods of Controlling Office Expenses

If expenses reflect the amount of activity in an office, we may safely conclude that control over expenses is divided into two functions, namely, control of the organization activities, and control of the expense involved in those activities.

A—Organization activities (office activities) may be controlled by:¹

1. Standardization of systems and routines
2. Improvement of methods and office layout
3. Selection of machines and equipment best adapted to the systems
4. Standardization of office supplies and forms
5. Preparation of office manuals
6. Control of the flow of work as much as possible
7. Introduction of flexibility into the office force and the office work.

Control is the manipulation of the internal forces so as to achieve the maximum volume of work at a minimum of expense in relation to the quality of the work.

B—Expense of office activities may be controlled by:

1. Development and use of budgetary control
2. Application of measured production which permits comparison of the "unit cost" of production
3. Application of the "incentive plan" to salary administration
4. Eternal vigilance in respect to the so-called miscellaneous expenses.

Office activities and office expenses may be effectively controlled, in addition to the above-named items, by providing adequate supervision and by properly training it in the *technique of personnel relations*.

¹ *Practical Office Management* by Harry L. Wylie, M. P. Gamber, and R. P. Brecht; published by Prentice-Hall, New York, September, 1937. (By permission of the Publishers.)

All of the methods of control are, in the final analysis, dependent upon the human element for acceptable results. *Men, methods and machines must be in harmonious balance.*

Standardization of Systems and Routines

Among the established principles of office management, there is one of considerable importance which deals with standard methods: *There can be no effective cost control unless there is some control over the manner of doing the work.* To establish and maintain a continuous and uniform operation requires constant supervision in order to detect deviation, *unless* the established method is reduced to writing and is made a standard whereby continuous and repetitious operations may be guided without the necessity for further executive action.

Probably 90 per cent of the work in the office is repetitious and routine and can be analyzed and standardized. Routines, those paths or sequences for office work, can be established in the same manner as factory flow-sheets. Each individual step in the routine can be studied, and broken down into its component parts. Each individual job can be studied and the duties can be analyzed.

Duplication cannot be eliminated unless we know where and when it takes place. The survey and analysis of office work will indicate the duplicated activities.

The establishment of routines will indicate the interrelationship of the various departments of the office. The efficiency of the office layout can be estimated by observing the amount of interdepartmental and intradepartmental movement of the personnel. *Considerable movement usually indicates inefficiency.*

Mechanization of Office Operations

An objective viewpoint will materially assist the office manager in his control work. Why is a task being done, and why is it being done this way or that way? These are pertinent questions.

The mechanization of office operations changed the problems of management. Under the manual system, measurement of office production was almost impossible except in over-all terms. Each employee completed a cycle of operations requiring a diversity of skills and capabilities.

As the office was mechanized, the operations were broken down into units and similar operations were centralized. Employees now perform only one or two phases of a complete cycle. The operations

are repetitious. Production can be measured and efficiency determined. Volume can be increased, time per unit of work can be decreased, and the unit cost can be reduced.

Mechanization has facilitated the standardization of forms. The form is the basis for reporting, recording and directing the various office services in a *uniform manner*. Facts and figures are brought together in such a manner that office services are expedited and are made more available. The cost of office services is recorded on forms.

If the office manager will look upon forms, not as so much paper costing very little, but as instruments which ultimately require labor, storage space, postage, and considerable handling, a substantial portion of administrative expenses will be effectively controlled.

The *volume* of office work cannot be controlled, but the *flow* of office work can. We need look no further than the mail order business to observe that the control of the flow of work is necessary to the smooth and efficient running of an office organization.

A flexible organization is a requirement if expense control is contemplated. When routines are established, the time required to complete each step in the routine is determined. Adequate personnel is provided to complete the *normal task* at the *normal rate of flow*. When the flow is subjected to variations, the personnel must be increased or decreased to meet these variations. Frequent increases or decreases of the personnel are impracticable and undesirable. Efficient organizations develop flexibility to the point where "flying squadrons" move from department to department assisting in the overflow, and no department is burdened with the expense of permanent extra help for such emergencies.

Centralized service departments such as typing, mechanical transcribing, printing, duplicating, messenger, mechanical repair and calculating, are invaluable in reducing office expenses and increasing office services. Their efficiency and effectiveness will, of course, depend upon the manner and method of their organization.

Budgetary Control in the Office

Without attempting to get into a discourse on budgeting, I will say that as a business practice, it has been accepted in the office as one of the office manager's best instruments of expense control. In building the budget, costs and expenses must be analyzed. There are two general classes of expenses, fixed and variable. The fixed expenses do not fluctuate with changes in volume. Variable expenses, on the

other hand, do fluctuate with volume and therefore are dependent upon volume.

All office budgets must recognize quantity because much of the office work is influenced by the activities of the other divisions of the business. The office manager should have made available to him the quantity forecasts of the operating departments. The real value in the budget, however, lies in the analytical work necessary to prepare it.

First, expenses should be reduced to unit cost basis. How much does it cost to write one letter? How much does it cost to issue a purchase order? How much does it cost to handle a customer's order?

Second, actual and anticipated performance should be compared and variations should be investigated and explained. Budgetary control serves as an internal check. *When a definite procedure is established which makes analysis and comparison necessary, many improvements will be made that otherwise would be passed up.* It is these improvements in operation that reduce office costs. It is the system which develops these improvements which leads to a greater control over these expenses.

Stripping office operations down to bare essentials, the customer's order is the actual basis for all office activity. Other functions are a side line of handling the order. To properly use the comparison of unit cost as a control mechanism, it is necessary to measure office production. It must be admitted that office production is harder to measure than factory production. Yet, it is being done. As a compromise where complete measurement is undesirable or is in itself too costly, we can measure the number of customer's orders and use that measurement as a guide or criterion for estimating the amount of auxiliary office work. We can test-check or sample in the office as efficiently as you can in accounting and auditing. Where and when to sample is the problem. In other words, it is not necessary to measure *all* office work in order to build up sufficient past-experience data for use in guiding future operations.

Office Survey and Analysis

The broad subject of administrative expense control is tied in with office management, accounting and management engineering. To con-

trol expenses does not mean to reduce expenses arbitrarily; neither does it mean an arbitrary reduction of personnel and salaries. It contemplates a thorough study of the underlying elements in the various expenses by means of a well-defined approach and a control of the activities which ultimately increase expenses beyond a reasonable relationship to the benefits received and the services rendered.

There are no standards in office management which can be applied to a general situation. There are no measurements of office effectiveness which can be applied to an industry. Each company must build its own standards based upon the company's objectives.

In summary, control of administrative expenses can be accomplished by surveying the organization:

- (a) Building an organization chart
- (b) Establishing routines
- (c) Preparing standard practice manuals
- (d) Studying and analyzing each job.

Control of administrative expenses can be accomplished by surveying the personnel:

- (a) Establishing efficient employment methods
- (b) Training the personnel
- (c) Establishing a fair and adequate salary plan
- (d) Following sound promotional methods
- (e) Developing co-operation among the employees
- (f) Improving the supervision.

Control of administrative expenses can be accomplished by surveying the methods:

- (a) Standardizing and improving forms
- (b) Developing budget and cost control
- (c) Studying office services
- (d) Improving physical factors
- (e) Surveying office equipment
- (f) Establishing maintenance and replacement policies
- (g) Standardizing office supplies
- (h) Improving office arrangement and layout.

Conclusion

Office management very logically falls under the chief accounting officer, the controller. There is a challenge to the accounting specialist to become more familiar with the principles of practical office management. Control does not lie in doing or not doing any one

thing, but rather in doing many things. The absence of one ingredient in the control formula will reduce the anticipated benefits. The economy effected by controlling postage, printing, stationery and supplies may be lost several times by the employment of inefficient help. The increased efficiency anticipated from improved methods may be dissipated by poor equipment. Men, methods and machines must be working together, just as the golfer's "woods, irons and putter," before a low score can be turned in.

The office manager must practice eternal vigilance on the many miscellaneous items of office expense.

Traveling expenses, always a problem, require periodic review. Dues and membership, subscriptions to magazines and periodicals, should be surveyed at regular intervals. Telephone and telegraph expense should be regularly surveyed. Time will not permit a detailed recitation of all of the similar items of miscellaneous office expenses and the numerous suggestions for their control. Education in the practice of economy will do more to reduce expenses than will legislation.

It would be a gross exaggeration to say, or even imply, that the success or failure of a business enterprise is dependent upon the degree of effectiveness of its office operations. Yet it is a truth which many have learned too late, that the office can make material contributions to the fulfillment of the over-all objectives of the business. It is also a fact that those procedures and practices of office management which have as their intent the improvement of office services, have also as their result the *establishment of control over administrative expenses*.

CHAIRMAN ANDERSON: Mr. Wylie told me earlier this morning that he talked for 125 minutes to cover the same subject in one of his classes that he has covered here in 25. Mr. Wylie would be glad to answer any specific questions or any general questions that you might have in regard to this subject. Has anyone any questions?

H. S. ROCK (*Partner, H. S. Rock & Co., Minneapolis, Minn.*): What proposed standards do you suggest for measurement of office production? You suggested the number of letters as a measure for stenographic help. What other standards are available that you would recommend?

MR. WYLIE: You are inquiring whether there have been established standards of measurement so that we can measure the number

of letters and say that it should be 50 letters a day or 50 letters per hour or whatever period you need to study?

MR. ROCK: I was not referring particularly to the actual figure but to the type of standards.

MR. WYLIE: Purchase orders might be taken as an example. Certain types and amounts of activity in the office are dependent upon the amount of activity in the purchasing department. The number of purchase orders may be indicative of the amount of activity in some parts of the manufacturing division. While it is impractical and costly to measure all production, we must realize that certain of the activities can be measured. So I say we can measure the number of purchase orders written. Then there is the number of customers' orders received. If we are operating under one roof where orders come to one point, we can measure the number of orders. We can measure the number of letters written, or we can spot-check. One company has found that it is very desirable to just spot-check, as you do in accounting. They pick out possibly two months and measure them.

You will have to start almost from scratch because you will have no past experience. Procter & Gamble in Cincinnati have been able to measure production, but first they studied their procedure for years, according to Mr. Burney, their office manager. They studied their own procedure and measured production for a number of years, and plotted their experience before they finally put in their incentive plan. Each office will have its peculiar problems, but there will always be two or three routines that can be measured and those routines will be indicative of other activities. I believe that purchase orders, customers' orders and letters are the most common measures used. This is rather a vague answer, but it is as close as we can come to it now.

WILLIAM E. JACKMAN (*Controller's Department, Eastman Kodak Co., Rochester, N. Y.*): Will you comment briefly on your experience with flying squadrons of clerical personnel as regards the result of the experience they gain in several different phases of clerical work? Doesn't this experience tend to broaden their background so that they perform each operation much better, feel more satisfied, and feel that they have a better chance for advancement in the organization?

MR. WYLIE: Definitely. I have always been an exponent of having groups of employees who are able to handle various operations. You can't hire them that way. It takes time to train them and you must make an investment in them. The vacation period is a good time to start. I know of several companies that have hired a group of temporary employees who move from one department to another.

I think that, generally, clerical detail scares us. I don't know what industry you are in. Your company may manufacture airplanes, refine oil or manufacture Gold Dust. In any case, the clerical detail will be much the same. Whether it be pushing a pencil or pen, the extension of debits and credits, or posting to forms, essentially the detail is all the same. After six months of proper training, you can develop a group of employees, properly selected to start with, who can step into any situation that develops in an office. You can get from 10 to 15 per cent reduction in payroll costs by following that procedure and working it out as carefully as it is planned. I am very much in favor of such a plan.

CHAIRMAN ANDERSON: Mr. Wylie, we are indeed grateful to you for this presentation this morning.

I should like again to call your attention to this afternoon's session. This session is unique, I think, in the history of our conventions. It gets back to the old discussion periods, the open forums, that we used to have. We have on the panel this afternoon four gentlemen who will discuss the relation of the control of distribution costs to the Robinson-Patman Act. We have men on this panel who will give worth-while opinions and valuable answers to your questions.

Among those participating in the panel discussion this afternoon is Professor Herbert F. Taggart of the University of Michigan. He has been teaching at Michigan, I believe, since 1920, interrupted by two periods of service with the Federal Government. For the past six months he has been on leave of absence from the University, serving the Federal Government in Washington as Consultant on Distribution Costs with the Bureau of Foreign and Domestic Commerce.

The second member of the panel is Professor H. J. Ostlund, a graduate of Ohio Wesleyan University, and now a Professor at the University of Minnesota. He told me, however, not to regard him solely as a teacher. He is Director of the Statistical Division of the National Wholesale Druggists' Association, and a Past President of our Minneapolis Chapter. He has been a contributor of articles on

statistics and is also an authority on the Robinson-Patman Act and its applications.

The third member of the panel is Albert E. Sawyer, who is also your next speaker. He brings to this discussion a broad experience. He is a lawyer, has been in the governmental service and has a long-standing connection with trade association work. He was particularly active during the period of the NRA in the establishment of codes. He brings a wealth of experience and an intimate knowledge of the Robinson-Patman Act to this afternoon's panel discussion.

The fourth member of the panel is C. Oliver Wellington, Senior Partner of McKinsey, Wellington & Company of New York, who brings a broad accounting experience and approach to this whole subject. Long a member of our Association, he has been a speaker at several of our conventions.

Our second paper this morning is on "The Control of Distribution Costs." The speaker is Mr. Albert E. Sawyer of the Market Research Staff of the Dennison Manufacturing Company, Framingham, Massachusetts. I am delighted to be able to present to this Convention, Mr. Sawyer, who will discuss this subject.

THE CONTROL OF DISTRIBUTION COSTS

ALBERT E. SAWYER

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New York, N. Y.

Introduction

THE title of this paper may awaken thoughts of a discussion of cost accounting technique within the rather narrow limits of debit and credit entries to controlling accounts, or the derivation of intricate formulae for the preparation of cryptic index numbers. Useful and important as such things are, I feel that this title challenges us to a much broader consideration of the elements which make up the control of the cost of distributing goods. I propose, therefore, with your indulgence, to venture somewhat beyond the usual limits of distribution cost problems in an effort to portray the full scope of the problem, and to try to integrate a number of seemingly unrelated elements which form a part of any well-rounded control program.

A generation ago, cost accounting was beginning to earn for itself an indispensable place in the control of production costs. The story

of this growth, and of the way in which the development of cost technique paralleled and became inextricably interwoven with the progress of scientific management itself, is too well known to this audience to bear further elaboration. Cost accounting is an established part of modern factory management.

The Problem of Distribution Cost Control

Whereas the business problem of the last generation was primarily that of greater and more effective production, the outstanding problem of today is the demand for a more effective distribution of the product of the now highly effective productive capacity. The present-day pioneers of your profession already are well forward in these new fields of effort, and we find also that there is the same inextricable relationship between the cost accountant and the management jobs. The one cannot proceed far ahead of the other; the two are component elements of a single task. A full realization of this joint relationship is of importance in grasping the significance of a broad approach to these problems. The cost accountant must make an effort to grasp the full sweep of management problems in order that his work may render the greatest service in these new fields.

The control of distribution costs offers a genuine challenge to the pioneering spirit. No wilderness ever faced Daniel Boone and his hardy contemporaries in their conquest of the land beyond the Alleghenies that was more bewildering, more trackless, or required greater patience, courage or resourcefulness than the prospect that faces the cost accountant in his conquest of the problems inherent in present-day distribution costs. But in those days there was an irresistible economic urge which brought forth the necessary patience, courage and resourcefulness. Today there is a similar economic urge—the overwhelming need for a more effective distribution system—that is giving rise to a less romantic but equally useful pioneering venture.

There is an appalling lack of basic facts and figures concerning the cost of distributing goods. There are few patterns of procedure to follow in developing these costs. Production costs and management technique offer little immediate help. The mind accustommed to scientific methods of appraisal finds no tools at hand with which to work. There remains before us, however, the job of measuring markets, establishing workable price structures, and devising effective methods of marketing and sales promotion. To approach this very nebulous task, management and the accountant must look to each other for

these essentials, and it is only by each knowing the full needs of the other, and accommodating his pace accordingly, that lasting progress can be achieved.

Definitions

The essence of "control" as we employ it in the title of this paper implies the full job of management.

The term "distribution" involves somewhat more than sale and delivery.¹ There is the merchandising job which must select, maintain, and develop salable goods. This is a task which falls somewhere between the traditional jobs of sales and production management, overlapping both in some degree. Research into markets and products is becoming recognized as a separate factor, or a separate group of factors, embodied in the general distribution job.

But we must not venture too far afield in this discussion. Our title contains one important limiting term. We are not here to discuss the control of distribution, but the control of distribution *costs*. By this we mean the process of measurement of the elements of management's job by some accounting or statistical device. This is a very broad use of the term, but one that I feel will be justified in this connection.

Outline

Early in this approach to our assignment, we are called upon to break down the general control or management of distribution into some of its principal elements.

First and foremost, there is a group of what might be termed "direct" elements—those which are most directly connected with the actual movement of goods in commerce:

- (1) The selection, maintenance, and development of:
 - a. Salable commodities
 - b. Suitable trade outlets
 - c. Suitable marketing personnel.

These elements of the management or control of distribution find expression in the work of the sales supervisors, merchandising spe-

¹ The term "distribution" might well be replaced by the term "marketing" as defined by the National Association of Marketing Teachers, namely: "Marketing consists of those business activities involved in the flow of goods and services from the point of production to the point of consumption."

cialists, and in production and market research management. Each of these elements requires some measurement technique which usually involves some form of cost accounting procedure.

In addition to the direct elements, there is a highly important group of supplemental elements:

- (2) The maintenance of a balanced relationship between the individuals concerned and the trade or industry of which it is a part
- (3) The recognition of the public interest in the particular business venture:
 - a. As it is encouraged by advertising and other forms of sales promotion
 - b. As that interest is defined by law (Robinson-Patman Act, Anti-Trust Laws, Food and Drug Acts, etc.)
- (4) Interrelated problems of price determination.

These elements of the general control task, although collateral, are fundamental and likewise require a technique of measurement and appraisal, thus calling once again upon the skill and ingenuity of the cost man.

There are other elements of the management task which might properly be considered, but which perhaps more logically fall under the head of "administration." I refer to the maintenance of a profitable return upon investment and productive facilities. Certain angles of this bear directly upon the management of distribution, but for the purposes of this discussion we will confine our consideration to the direct and immediately collateral elements that already have been mentioned.

It is hardly necessary to point out that a discussion of so broad an outline must be confined to the general elements of the problem. Application of these elements to specific situations in the field of distribution costs presents an even wider range of possible variations than is ordinarily encountered in production cost work. The company with a single product, limited as to variation in size or style, which is marketed in a simple manner, is confronted with a distribution cost problem which is markedly different in the degree of its complexity from that of the concern with several thousand products that reach the ultimate consumer through many and devious channels.

Likewise, the concern which distributes so-called heavy goods requires a totally different emphasis from the one that deals in lighter

merchandise processed for the retail market. These variations are fully understood, I am sure, and require mention here only to bring out one important characteristic of the cost accountant's task when operating in the field of distribution costs, viz., the attitude of mind which accommodates wide variations of emphasis as each new situation is faced. It also demonstrates the necessity of sifting out immediate needs of management from the ultimate needs, and planning for the latter while doing what can be done with the facts available to be currently useful.

THE DIRECT ELEMENTS IN THE CONTROL OF DISTRIBUTION COSTS

Selection, Maintenance, and Development of Salable Commodities

To the concern with a single standardized product, this title would have little application except as it indicates the general need for eternal vigilance to keep the product acceptable to its trade. By keeping pace with developments in other fields, the encroachment of unfavorable competition can be reduced to a minimum. When, however, the products of a concern are numerous and subject to the whims of style and season, there is a major management function involved in selecting the right things to offer, maintaining or keeping up-to-date those already in the line, and developing new products which fit into the manufacturing and selling facilities in a profitable fashion. This is a job for the merchandising expert, but it is a job that is greatly in need of organized facts and figures with respect to the movement of these numerous products through the several trade channels to the ultimate consumer. This need is a constant one. The direction and emphasis of the work of merchandising is largely controlled by the performance of items already in the market. Current statistics revealing the distribution process form the groundwork of the merchandising job. This places the accountant in close relationship to this branch of management, and imposes upon him the obligation to understand the demands of this job, and build his statistical contribution accordingly.

The cost accountant's contribution subdivides roughly into four major undertakings:

1. The development of commodity classifications
2. The development of a program of commodity statistics
3. The selection of source material
4. The organization of the statistical material for control purposes.

Commodity Classifications

This is one of those important jobs which, if well done at the beginning, establishes a lasting foundation for long-range statistical needs. If done casually or without an adequate vision of the scope of the commodity statistical requirements, it can be a constant source of expense and irritation, and a severe handicap in the achievement of the entire program. It is essential, therefore, at the outset to take seriously the task of determining serviceable classifications, defining the commodity "item," that is, the smallest statistical unit, and arranging for the grouping of these items into divisions and sub-divisions. This task may be a very simple one, but in many cases it is a complex job which calls for the thorough knowledge of the techniques of account classification. An effective commodity classification or code is one of the most useful tools that the merchandiser can have at hand.

Program of Commodity Statistics

There are two main objectives in setting up a program of commodity statistics for the service of merchandising. The first and most obvious is a plan for the development of a current history of sales experience with each commodity item properly grouped in relation to all other items. This is the day-to-day history of the commodity movements of the particular companies. A second and equally important objective in any program of commodity statistics is the projection of the history of the particular concern in terms of the general movement of such goods. Not only is it important for the merchandiser to know the facts concerning the sales of his own items, but of equal importance is a full knowledge of the trend of sales of similar items sold by other concerns. In other words, industry-wide commodity statistics afford a most important basis for many of the decisions which are faced in the management of merchandising. It is equally important that this outside experience be interlocked with the experience of the individual concern in such a fashion that comparisons are meaningful. It is important for the accountant to exhaust the possibilities of governmental compilations, such as the Census of Manufactures, the Bureau of the Census, and, more particularly, the statistics of related trade associations. In addition to this, there is the technique of specific market research undertaken by an individual concern or group of concerns. The cost accountant has an important place in the planning of statistics of this character.

It is worth noting that this is a field in which the company accountant sometimes fails to venture, perhaps on the mistaken impression

that it lies beyond the proper scope of his interest. Our own feeling is that the company accountant has a most valuable contribution to make to the merchandiser in ferreting out and appraising these sources of outside information, and translating them in terms of the experience of the company's own product as revealed in the commodity statistics.

Selection of Source Material

The selection of the proper sources of a statistical program is another one of those important foundation jobs which it pays to approach seriously, and with a full knowledge of the broad program of statistical needs. Here again, the casual approach, or an approach which considers only the immediate requirements, can prove to be a serious stumbling block in providing the fullest contribution of cost accounting in the control of this phase of distribution cost.

It is well at this point to stress an attitude which should characterize the approach to many of the accounting problems in this field. The accountant should have in mind, and be able to justify, the important distinction between a statistical plan or program and the operation of that plan or program at any given moment. The statistical plan may be, and probably should be, a most comprehensive one, embracing the entire field of commodity distribution—a much broader treatment than any management could utilize at any one time. The justification for this is found in the fact that management needs are never static; there is a constant shifting of emphasis, and the things which seem most vital today are replaced by new conditions which require a totally different management emphasis six months or a year from now. It is highly important, however, that the management be in a position to maintain its perspective in the course of the natural changes in emphasis.

The accountant must avoid being caught unprepared by the shift in management requirements, so that it is necessary for him to rebuild his statistical process or suffer a dwindling of interest on the part of management in the material which he supplies. The plan, therefore, should be laid out along the broadest possible lines, but without the thought that this plan, in all of its details and ramifications, would ever be in full operation at any one moment. The expense would be prohibitive and the volume of data entirely undigestible. Certain basic over-all facts will always be developed, but the detail will be shifted constantly to suit the particular requirements of the management at the moment. Under such circumstances, management inter-

ests can be met, and in a way which preserves perspective because of the ability at all times to trace these shifts from one point to the next with unbroken continuity. A necessary corollary to this is that management receive only details in which it is interested at the moment, and in such volume as it may digest with greatest usefulness.

In the selection of the proper source material for commodity statistics, it is necessary for the accountant and the merchandiser to work together in a joint study of invoices, sales order copies, warehouse withdrawal forms, together with back orders, returned goods, and credits of various sorts, in order to determine just what is available and, furthermore, to determine, if possible, the relationship of one set of source material to another. If this job is carefully done at the very beginning, a great deal of misunderstanding due to an utter lack of information, or a duplication or overlapping of information, can be avoided.

Organization of Statistical Material for Control Purposes

The accountant renders his greatest contribution in this field in presenting facts so as to meet the practical needs of management control. This is especially true in the control of distribution cost, and that phase which is concerned with the selection, maintenance and development of salable commodities.

In this field it is very easy for the merchandise manager to be hindered rather than helped by an undigested mass of sales statistics. The first requirement is an understanding and sympathy with management's task. Wherever possible, the figures which go to the manager should be those derived by the use of the *exception principle*. There is a practical application of the technique of standardized performance in this field. The merchandise managers in co-operation with cost accountants can establish their best appraisal as to the performance expectations of each item or group of items. This can be translated in terms of maximum and minimum limits of performance, and management is then supplied with reports of exceptions which rise above or fall below these standards. Through devices of this character, the accounting process sifts the significant facts and supplies them to management in a usable fashion.

It is also important, under some circumstances, to employ the principle of *staggered reports*. Co-operation between the management and the accountant in establishing the schedule of reports can do much to make statistics of this sort a more vital factor in control. Instead of the manager being confronted with complete reports of an entire

line, which cannot readily be digested while the information still is fresh, he can be supplied from week to week or from month to month with those sections about which he is most vitally concerned. The statistical program can be meshed with management's program. Here again, the statistical output is adjusted to the program of management, with the result that these facts play an increasingly important part in the actual control of distribution.

Selection, Maintenance, and Development of Suitable Markets and Personnel

The management job with respect to markets and marketing personnel, while actually two jobs usually administered separately, rests upon a common set of facts and experiences, so that in considering the accountant's contribution to this phase of management control, it is possible to merge our considerations.

The cost accountant's contribution subdivides roughly under the four headings discussed in the previous section:

1. The development of geographical and trade classifications
2. The development of a program of statistics
3. The selection of source material
4. The organization of the statistical material for control purposes.

Development of Geographical and Trade Classifications

What was said of the importance of adequate classification of commodities applies with equal force in connection with the geographical and trade classification codes. This job must be done in the light of a broad, long-range program, or it will cripple the effectiveness of this phase of cost accounting work.

Geographical distribution statistics are highly important to the sales and merchandising management. They are doubly so if so classified as to make comparisons from period to period on an unchanging basis, regardless of the inevitable rearrangement of administrative subdivisions which occur in any widespread sales organization. In other words, a good general rule to apply in this connection is to build the code along lines of political boundaries, subdivided into areas small enough to avoid the necessity of subsequent partitions to accommodate changes in administrative territories or districts. Such a plan also permits maximum comparison with statistics of the Census of Manufactures and the Federal Reserve Board. There are a number of very comprehensive sales area classification plans published by advertising concerns. These are always very helpful and in many cases

can be used without substantial modification. The plan worked out in the Dennison Manufacturing Company is described on the opposite page. The plan is designed to fit the particular needs of the company which distributes in large part to commercial consumers, as well as through the normal resale channels. Several trade associations have adopted this same general plan, so that the maximum comparability is possible on an industry-wide basis. By the use of this classification, the sales statistics of the company have been maintained on a constant basis for a considerable period of time, despite several far-reaching changes in the boundaries of the territories, districts and regions within which the sales force operates. The value of this fact can well be appreciated by those who have struggled to reconcile statistical data which has constantly changed its base.

The trade classification requires the careful consideration of the classifications in general use in the particular trade. The Bureau of the Census supplies an excellent place to begin such a study. If this is inadequate or incapable of adaptation, the nearest applicable trade association source should be consulted.

Development of a Program of Statistics

All that was said with respect to the organization of a statistical program for commodity statistics applies with equal force to the analysis of the market and work of the sales force. Here again, the plan must be comprehensive and its application must be such as to fit the current needs of management. The volume of detail should shift with the shift in management emphasis. This year, facts which concern policies regulating the resale of dealer goods may be the principal concern of management. Next year's events may bring into sharp relief problems concerning the distribution of sales solicitation efforts throughout the country or the method of compensating the sales force. Mixed with this may be the need for a detailed study of certain eastern markets with reference to syndicate store buying. It is for management and the accountant to synchronize their efforts, so that the required detail is available at the right time. If a plan of statistics has been laid out with these principles in mind, it should render the quality of service that is most useful.

Selection of Source Material

The source material for market and personnel control provides a major problem. Sales invoices are popular statistical media, because they are a convenient by-product of a very necessary business process,

SALES AREA CLASSIFICATION—DENNISON MANUFACTURING CO.

The Geographical Code

Sales areas are portions of states representing contiguous trading districts. Sales sections are subdivisions of areas, the smallest geographical unit used in market research analysis of this Company. The section may be a portion of a large city, an entire city or town, or a group of small towns. To facilitate comparisons with national statistics, political boundaries of state, counties, cities and towns are adhered to as far as possible.

In a few cases logical sales areas could be built only by crossing state lines. In such cases the area code represents the dominant state. To preserve exact state line identification the sections in such areas do not cross state lines. It is therefore possible to compile precise state by state statistics on the section analysis basis. For general purposes the state totals developed on the area basis will prove adequate.

Likewise in the case of Federal Reserve District classification it was not always possible to divide areas exactly in accordance with the boundaries of the districts. Where deviation from the official boundaries occurs the area bears the number of the district including the most important towns in the area.

The Sales Area

Sales areas are portions of states representing contiguous trading districts and may comprise a number of counties or a single large metropolitan district. Dennison experience over the past five years has been used in conjunction with various trade studies to determine the size of the area. The sales area code number is made up as follows:

The first digit indicates the census district. (There are nine districts in the country.) The second digit, when combined with the first, indicates the state. In some cases a single state will require two or three consecutive numbers. The third digit indicates the Federal Reserve district. (There are 12 districts and the figures 1 and 2, when used with far western states, indicate districts 11 and 12.) The fourth digit is used to further identify the particular area.

The Section

Areas are subdivided by sections. The fifth and sixth places of the code identify the section when used in conjunction with the area number. In the majority of cases the sections represent the significant towns within an area, a miscellaneous section covering the balance of the area.

The Official Code Sheets

The Dennison Sales Area Manual contains an official code sheet for each sales area. Each code sheet is made up of four parts:

- Part 1—The official name of the sales area, the code number, and the state or states involved.
- Part 2—A description of the territory which makes up the sales area. A list of counties with indication of boundaries where less than county units are involved.
- Part 3—A list of the sections into which the sales area is divided. Where sections are less than complete cities or towns boundary indications are given. Sections are cross-referenced to counties.
- Part 4—A list of counties and towns over 1000 population with an indication of the 1930 census of each town listed as a section. This is compiled by states from U. S. Department of Commerce, Census of Distribution (table 13 in each case).

The Dennison Sales Area Manual

The Dennison Sales Area Manual is maintained under four separate arrangements:

- I—Area code sheets arranged by states.
- II—Area code sheets arranged by Federal Reserve districts.
- III—Area code sheets arranged by Dennison Regional Boundaries—for use of Market Research Department at Framingham.
- IV—Area code sheets arranged by Dennison Regional Boundaries—for use of regional offices.

but they have only a limited use in this phase of distribution cost control. They record only data as to sales made and contain few facts which throw light upon sales efforts. The same is true of sales order copies; these have some advantages in that they are a step nearer the actual selling process, but they must be offset by back-order and cancellation data. Salesmen's expense reports provide some direct information relative to the distribution of sales efforts, but these, too, make a limited contribution. Too frequently they are not related to specific efforts and provide meager help in an attempt to portray an adequate picture of the distribution of sales efforts.

It is frequently necessary to approach this problem by creating a special report form. In some cases it may be possible to combine this with a system of preplanned call schedules. Under some conditions it is practical to carry this step to the point of very closely controlled sales solicitation. In other cases, the preplanning aspects can be applied only in part. In most cases, however, it is practical to require fairly complete reports on each sales call. The Dennison Manufacturing Company uses such a special call report, one type of which is illustrated in Exhibit 1.

All of the spaces on this form are not required to be filled in all of the time. For instance, the request for an approximation of the time spent on each call was insisted upon for a period of four years. This was a period sufficient to obtain important insight into this aspect of distribution cost. The tabulation of this data has since been discontinued as no longer necessary for control purposes. The point to note, however, is that the space remains on the form and is still a part of the general plan, and can be reinstated again for further tests, or applied to certain types of sales efforts, when management feels the need for such additional factual material. This is an excellent illustration of one instance of a shift of emphasis which temporarily drops one set of facts without destroying the machinery by which these controls can again be employed when management so requires.

Organization of Statistical Material for Control Purposes

The remarks concerning the organization of commodity statistics have equal force in connection with the organization of statistics which analyze markets and the efforts of sales personnel. Further elaboration here would be tedious repetition.

This is a very sketchy survey of the direct elements of distribution control accounting, but it is hoped it is sufficient to indicate the scope

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	DATE	NO. CALLS	MINUTES	SALESMAN			
FOLLOW UP DATE:							
MAIL AID REQUEST: <input type="checkbox"/> COMPLAINT REPORT: <input type="checkbox"/> PUT DETAILS ON REVERSE <input type="checkbox"/> GIVE DETAILS ON REVERSE <input type="checkbox"/>							
CLASSIFY ACCOUNT: SALESMAN <input type="checkbox"/> NO. CALLS <input type="checkbox"/> REGION MAIL <input type="checkbox"/> DIST. 99 <input type="checkbox"/> NON-PROSP. <input type="checkbox"/>							
1 QUOTED COMP. SALE	V RESULT	V ORDER CLASS	COMMODITY		QUANTITY	COMM. NO.	O.C.
	SOLD	RESALE	EST. NO.	COMPETITOR	REASON	①	②
2 QUOTED COMP. SALE	V RESULT	V ORDER CLASS	COMMODITY		QUANTITY	COMM. NO.	O.C.
	SOLD	RESALE	EST. NO.	COMPETITOR	REASON	③	④
TRADE NO. SECTION NO.					PREVIOUS ORDER DENN. <input type="checkbox"/> COMP. <input type="checkbox"/>	PREVIOUS ORDER DENN. <input type="checkbox"/> COMP. <input type="checkbox"/>	

EXHIBIT 1

of the problem and something of its general nature. We now turn to a consideration of the collateral elements.

COLLATERAL ELEMENTS

Problem of Maintaining Balanced Relationship in an Industry

There are those who hold firmly to the proposition that the less a given company concerns itself with the affairs of its competitors, the better it is equipped to fight its own battles for existence. The events of the last decade in particular have shaken the confidence of others in this extreme individualism, and created an increasing respect for the notion that enlightened self-interest embraces a somewhat wider scope and makes room for the thought that there must be some sort of balance between the marketing programs of the several members of the trade or industry. The increasing destructiveness of "free-for-all" competition has afforded sufficient evidence of wasteful distribution to bring about a more or less general recognition that the public interest can suffer as the result of uninformed and unbalanced competition.

As to the soundness of the various economic philosophies which bear upon this problem, we are not here concerned. It is sufficient for us to note that management is becoming aware of the significance of greater knowledge concerning competitive activity, and for the accountant, this adds another field in which to exercise his skill and ingenuity in assembling facts and organizing them for use in the formulation of distribution policies. The problem presented here puts the cost accountant in approximately the same relationship to distribution management as he is to production management when he joins with the methods and production engineers in the elimination of waste and inefficiency in the factory. In both cases his task is to ferret out the facts, devise a practical routine for assembling them, and present them to management in a usable fashion.

We use the term "balanced relationship" in this connection to describe the process whereby the volume of production of a given concern is measured not only in terms of its own past performance, but in terms of the total production of the entire industry. This does not necessarily involve any of the several theories of production control or production allocation. So far as we here are concerned, it simply recognizes the growing significance of knowing at all times the relationship between a company and its industry, and of realizing fully the consequences of distribution policies which alter this relationship.

In other words, we are interested in the development of these facts for the use of the management of the individual concerns, and not as a part of any joint industry-wide "balancing" program.

When the relative position of a significant sector of an industry is increased by aggressive distribution technique, a corresponding decrease occurs elsewhere. The decrease may fall upon a single concern, or be scattered widely over many. In most industries there is a reasonable margin of tolerance which accommodates normal fluctuations and supplies the needed incentive to healthy competition and effective distribution; but always there is a breaking point, the tolerance is exceeded and the competition loses its self-regulating character and enters the destructive phase. Each concern fights desperately to maintain its position in the trade, and this fight is severe enough if waged with full knowledge of all the facts. It is doubly destructive when the facts are scarce and false and misleading rumors form the basis for management policy.

When there is an appreciation of the value of gauging progress in terms of relative relationship to the industry, it becomes clear that defensive tactics employed at the wrong time serve only to increase the loss of business and decrease the value of the output. When the rate of decline of the individual concern is roughly proportionate to the decline of the industry, an ill-timed effort on its part to regain volume is bound to touch off an unjustified scramble for business which usually ends disastrously for all concerned.

Likewise, under more favorable market conditions, the concern which complacently tolerates a *status quo* or a mild increase in volume when the general rate of increase is at a more rapid pace, so that the net result is a loss in its relative position, definitely contributes to a situation which results in destructive competition as soon as the turn in the market reveals this trend in its true light. In other words, it is beginning to be recognized that the *stability* of a market is achieved not by the maintenance of a static level of price or volume, but by the maintenance of a balanced relationship between the several units of an industry; and this, not by agreement, but by the enlightened self-interest of each management unit acting in the full knowledge of what is happening to itself in terms of the market as a whole.

This type of stability does not eliminate the chance for the growth of the concern in relation to its competitors, nor does it restrict the entrance of new competition. Properly understood and operated, this form of stability works upon the *rate of change* and tends to moderate its fluctuations. It recognizes that it is the sudden and vio-

lent alterations of relative position that contribute largely to disastrous price wars. The more gradual shifts, even if persistently in the same direction, seldom bring about violent defensive tactics.

The high cost of destructive and uneconomic competition in terms of wasteful distribution policies has caused us to give this problem a prominent place in this discussion as one of the sources of the high cost of distribution which is greatly in need of control.

Procedure for Maintaining Balanced Relationship

To meet the problems raised by the recognition of the need for current knowledge of relative position, the accountant must bring into play his ability to make the most out of what he finds in the way of source material. Frequently, there is a discouraging task in this connection because few fields of knowledge are less developed than industry-wide statistics of sales and production problems. Product classifications are often too broad or so commingled with other products as to be valueless for comparative purposes. Industry classifications, likewise, are not sufficiently subdivided to afford a workable basis. The National Recovery Administration made lasting contributions in this direction, and brought into being vast quantities of statistical material of the sort which, if maintained, would be very helpful. The accountant must familiarize himself with the material available in government compilations, such as the Census of Manufactures, the special reports of the Bureau of Domestic and Foreign Commerce, and the reports of the Department of Labor. Other branches of the Government such as the Federal Reserve Board also have bodies of facts which should not be overlooked. Surveys of private agencies such as the National Industrial Conference Board, the Brookings Institution, and Dun and Bradstreet should be examined for contributions in this connection.

If there is an active trade association operating in the particular industry, the chances of doing the best job are most favorable. The trade association program may well include a project for the current collection and dissemination of statistics concerning sales and production volume.

Where the industry is loath to permit the dissemination of actual relative position of individual units, or even actual aggregate totals for given products or given regions, much value can be achieved by the use of what might be termed a relative position index. This index reveals the normal relationship of the individual concern to its industry as 100, with variations above and below this line. Provided the

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base period compilations are kept confidential, there is no way by which actual dollar sales or quantities can be worked back from one or a series of these indexes. An explanation of how such an index might be calculated is given on page 206. Thus the information that is necessary for management control is made available without disclosing collateral facts which may properly be regarded as confidential to each concern.

The organization of an industry-wide statistical program of this sort is an accounting task of first magnitude, and one that can render a substantial service in management's attempt to bring one source of wasteful distribution costs under control.

Promotion of the Public Interest by Advertising and Sales Promotion

In this field the need for varied yardsticks is apparent in order to test the effectiveness of advertising ventures. Some types of measuring devices are simple tabulations of inquiries. Other situations demand more complex technique. Some excellent work is being done in such fields as window advertising, where locations are rated and appraised on a fairly scientific basis. This is a field of distribution costs that is very real and somewhat out of the ordinary line of cost analysis. I believe it is fair to say, however, that it has a proper claim to the interest of the cost accountant, and he has a further contribution to make in this field.

Public Interest as Defined by Law

When searching for the roots of the present trend of governmental intervention in business in the United States, it is difficult to find a clearer statement of the underlying philosophy toward which we are groping than that which occurs in the majority opinion in the case of *Munn vs. Illinois* (94 U. S. 113) written by Chief Justice Waite in 1876. The Chief Justice said:

Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community-at-large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created. He may withdraw his grant by discontinuing the use; but so long as he maintains the use, he must submit to the control.

The doctrine so aptly expressed by Chief Justice Waite has its root deep in the 17th century Common Law of England, and that

DESCRIPTION OF COMPOSITE INDEX

The following composite index method is suggested for use in connection with reports issued in situations where it is highly desirable to reveal to a given manufacturer his trend in relation to the general industry trend, without revealing specific quantities or values, or percentages of such quantities or values which, when used with facts and figures already known to the manufacturer, permit him to derive an approximation of the total.

The method here suggested establishes for the industry and for each manufacturer, a base period for which variations in business volume in current periods can be expressed in terms of a composite index. The following is an illustration of the proposed method:

Base Period—January 1 to June 30, 1935

Industry total — \$800,000.00 (not known to member)

Members' total — \$12,500.00

Members' percentage of Industry total — 1.56 (not known to member)

Current Period—July through September (any 1/12, 1/4, 1/2 or whole year)

Industry total — \$300,000.00 (not known to member)

Members' total — \$6,000.00

Members' percentage of Industry total — 2.00 (not known to member)

The percentage for the base period (1.56) is divided into the percentage for the current period (2.00), giving a resulting composite percentage of 128.00. This indicates that the manufacturer's trend is 128 as against the industry trend of 100. Inasmuch as the manufacturer knows from an examination of his own records that he has lost 4 per cent as against his own sales for the base period, he is informed that the total trend of the business has suffered a very much sharper drop than he, himself, has experienced. If the total industry had dropped in proportion to the manufacturer's decrease, the manufacturer's index would register 100. If the industry had gained as against its total for the base period, the manufacturer's index would read less than 100.

So long as the manufacturer is not aware of the proportion which his own share of the business bears to the total business for the base period, it is impossible for him to deduce the total industry business at any time. Even if he should guess at his own percentage, the deduction made as a result of calculations built upon the guess would carry him no further than his guess would carry him. *In other words, there would be no result which would confirm the guess.* The composite index can be used with safety in all types of situations where it is desirable to compare trends without revealing absolute quantities.

The manufacturer who so desires can plot his own percentages of losses and gains on a chart, and by referring to the composite index, indicate an approximation of the industry trends. There is no mathematical relationship between his own percentage loss and gain and the composite index, so that the industry trend curve cannot be plotted exactly. The manufacturer can tell, however, whether the trend line is above or below his own trend line. How much above or below he cannot determine from the data which are given him.

branch of the law which we know as the law of trade restraints has tended to develop along the lines of this doctrine, each new venture in regulation on the part of the government, or each new assertion of independence on the part of private enterprise, being met by a new test of the status of the public interest involved.

On April 3, 1938, the Works Progress Administration released an announcement of a project—

to survey state marketing laws throughout the United States. This survey is designed to obtain legal and economic data concerning laws on the state statute books and make them available in useful form to all federal and state governmental agencies, trade associations, business men, lawyers, students, and teachers of law and marketing.

In connection with this announcement, a tentative subject outline was prepared. The outline is limited to a listing of topic headings under which the subject matter of these statutes fall, and yet this listing consumes fifty pages of typewritten matter. This outline of itself constitutes a valuable contribution to the literature on government regulation of business, and marks the study as a serious effort to render a much needed service. It is to be hoped that the project maintains the excellent standard of scholarship that is presented in this outline. A perusal of the outline gives some indication of the extent of the impact of the public interest upon our marketing processes, and it indicates also the many points in which the techniques of accounting are involved in measuring this impact in any specific situation. When we add the Federal laws, most notably the Robinson-Patman Act, to this great mass of state laws affecting the marketing of goods, it is easy to appreciate the place of this subject in any consideration of the control of marketing costs.

This is a phase of marketing management in which my interest has centered for some time, both from the standpoint of the lawyer and of the accountant. It has become increasingly apparent in the course of this work that there are two separate and distinct aspects of the way in which business must receive these official expressions of the public interest. First, and most obvious, is the instinct to keep out of trouble, and a statute is first read with this attitude uppermost in mind. Second, and less prominent, is the attitude of mind which considers each statutory expression of the public interest as not wholly negative and searches for the positive element which helps, rather than hinders, the business process. This approach to the understanding of such laws stresses the need for a judicious mixture of cost

technique and marketing experience. Both must blend into a single effort to achieve an interpretation of the positive, as well as the negative aspects of the law.

The Robinson-Patman Act (Public Acts No. 692—74th Congress) offers some excellent illustrations of this dual approach. Viewed solely from the restrictive or negative point of view, this Act appears in the light of another Volstead Act (41 Stat. 306)—a series of interferences with normal marketing practice. If, however, we look through the cost accountant's eyes to determine what normal marketing practices are, we are apt to find the principles of the Robinson-Patman Act to be somewhat less in the nature of interference, and to contain constructive aspects which look toward a more efficient marketing process.

This Act, like many of those which now appear upon the state statute books, was born of the depression, in which our marketing processes had undergone rapid changes. These changes were not the orderly processes of an evolution from one form of marketing to another, but the disorganized and chaotic result of a mad scramble for business. The net result has been to emphasize the inefficiency and high cost of our methods of distribution. The Act is an expression of one phase of the public interest in an orderly marketing process, and in this respect its principles parallel and merge with a constructive program for a more effective control of distribution costs.

Problems Imposed by the Robinson-Patman Act

Prominent among these principles is that which proscribes unjustifiable differentials in prices or terms and conditions of sale. It is not our purpose here to treat this aspect of distribution costs in any great detail. In the past two years, much has been written on this subject, and your Editorial Department has seen fit to publish two of my addresses on this subject in the *N. A. C. A. Bulletin*. In the early days of the Act, in an address before the Boston Chapter on "The Accounting Opportunities Under the Robinson-Patman Act," I sought to point out the large areas where the Act might be applied to very good purpose on the basis of existing knowledge, and without inviting the uncertainties inherent in the proof of difficult joint cost situations.² I said there:

In many cases quantity discounts reach far beyond the scope of savings computed by *any* cost method, and the cost accountant's task in such cases is

² *N.A.C.A. Bulletin*, February 15, 1937, page 679. "Cost Accounting Opportunities Under the Robinson-Patman Act" by Albert E. Sawyer.

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relatively simple. He can avoid most of the argumentative questions by resolving them in favor of the maximum savings, and still fall far short of enough to justify the existing discount. (Page 684)

Certainly in the absence of finely divided distribution costs, based upon adequate statistical data, provable savings must be of the more obvious type. Until we learn a great deal more about the behaviour of distributing costs, our cost accounting processes will not produce the nicely balanced discount structures which delight the sales force. (Page 686)

Few are the concerns today who are in a position to claim anything approaching complete distribution costs. As a result, many eligible savings must remain hidden or go unproved, pending the completion of the slow and tedious process by which these data are collected and organized for costing purposes. The overzealous accountants, who risk the pyramiding of conclusions upon narrow and uncertain factual bases, are quite apt to risk the overruling of their contentions; and, what is worse, the frequency of such attempt may delay the day of general acceptance of distribution cost work by business and the government. (Page 687)

It seems to me from what little experience we have been able to accumulate in the study of the problems of our own concern, attempts to eke out justified savings from difficult and complex cost situations had better be deferred to a day of greater understanding and broader facts. Enough has been done in the more direct elements of distribution cost to indicate that problems are no more hopeless than were the problems which met the pioneers of the last generation in production cost work. (Page 687)

In all likelihood, the truly indirect distribution costs, such as sales management and office expense, will offer the greatest resistance to attempting to work them into proof of savable costs in the justification of quantity purchases. It is here that a far-sighted cost man will move with greatest caution, realizing the controversial nature of the cost methods employed and the present inadequacy of available data. On the other hand, it is in this field that the persuasive sales executive can lead the cost man on flights of fancy, which may come to a sad end before the hard-headed realism of the law. (Page 688)

A year later we discussed with the Baltimore Chapter some of the cost work which formed the evidence in the first four cases determined by the Federal Trade Commission under this Act.⁸ We concluded that:

This brief examination of the treatment of cost accounting problems in the few cases which have been decided under this Act emphasize the truly pioneering nature of the cost work which must be done in this field. Distribution cost techniques are, for the most part, new and untried. This Act puts them to a very severe test. It is hardly necessary to point out that the accountant must proceed with the realization of the limitations of knowledge, and, by the same token, he must not follow the meager precedents of the early cases too blindly. (Page 690)

⁸ N.A.C.A. *Bulletin*, February 15, 1938, page 681. "Cost Accounting As Evidence in Cases Arising Under the Robinson-Patman Act" by Albert E. Sawyer.

Essentially, it is a new field, and those who undertake work of this character must do so in the spirit of the pioneer. If approached in this spirit, the task will reveal itself as one that is not confined to compliance to the Robinson-Patman Act. The results achieved by clear-headed cost work in the field of solicitation and order-handling costs may be as far-reaching in their effects upon future merchandising policies as was the work of the cost accountant a generation ago in charting the course of production efficiency. It may well be that the stimulus supplied by the interest in this Act may bring to the attention of management aspects of selling and handling costs which reveal the need for a substantial adjustment of distribution policies regardless of the terms of the Act itself. (Page 696)

Had the clear-cut statement of Chief Justice Waite, with which we opened consideration of this section, been part and parcel of every statute and every court decision affecting business practices in the past sixty-two years, and at the same time generally acknowledged as the guiding spirit by which business itself forms its own policy, we would have had a consistent philosophy upon which to build a national economic policy. The problem before us has no such simple solution. There has been no steady evolution of the national business philosophy. There are conflicting currents both in the government and in the ranks of business, and instead of a single well-defined trend, we have several inconsistent developments, which leave a general impression of confusion in the public mind.

Perhaps the real value of our present struggle for some interpretation of these trends is the emphasis it places upon the need for the formation of a national economic policy, which, once established, would provide us with some usable measure of the public interest as it impinges upon our complex mass of business practices.

Legislative trends are not consistent, and we are in great need of the new approach which is born of a thorough understanding of our present-day business practices and a full appreciation of the nature of price behavior in a complex market. Until we meet this need, each session of the national Congress and of the legislatures in the forty-eight states is likely to add to the confusion by increasing the intensity of the diverse trends already apparent. Organizations such as your own have a special obligation to contribute to a greater understanding of these problems. It is through such channels that a national economic policy must develop.

Interrelated Problems of Price and Cost Determination

The problems of price and cost determination are interrelated to such a degree that it seems as if any treatment of the one requires

that it be linked up with the other. This does not imply necessarily that there is anything in the nature of a direct relationship between cost and selling price, nor that variations in the former bring about proportionate responses in the latter. There are several schools of thought on this cost and price relationship, and much has been written upon the subject.⁴ These are the considerations of the economist, and they lie beyond our immediate concern. It is important, however, to recognize that the price is determined, not by adding a fixed percentage to cost, nor by some simple calculations to determine the supply and demand ratio. Many other factors come to bear upon the net effective price of an article.

In addition to the cost factor and the supply-demand factor, there are three group situations, which condition price:

1. Factors inherent in a given market
 - A. Competitive prices
 - B. Competitive concessions
 - C. Competitive products (substitutes)
 - D. Manufacturer-wholesaler competition
 - E. Lower competitive cost by reason of lower wages or integrated manufacturing or marketing organizations
2. Factors inherent in the general sales policy of a concern
 - A. Credit terms
 - B. Trade discounts
 - C. Quantity discounts
 - D. Delivery policy
3. Factors inherent in the nature of the product itself
 - A. Style, season, or obsolescence
 - B. Patents, licenses, etc.

⁴ The following are among the more recent treatments of price and its relation to our total economy:

Price and Pricing Policies by Walton Hamilton and Associates, McGraw-Hill Book Co., 1938.

Minimum Prices Under the NRA by Herbert F. Taggart, Michigan Business Studies, Volume VII, No. 3.

The Cost Principle in Minimum Price Regulation by Herbert F. Taggart, Michigan Business Studies, Vol. VIII, No. 3.

Modern Competition and Business Policy by H. S. Dennison & J. K. Galbraith, Oxford University Press, 1938.

Industrial Price Policies and Economic Progress by Edwin G. Nourse and Howard B. Drury, The Brookings Institution, 1938.

- C. Relation to other products—the item is essential to “round out the line”
- D. Promotional policies—introductory concessions or loss leaders

In many instances, additional factors will exert their influence upon price determination, but the above list should be sufficient to indicate the fact that the net effective price of a product is the result of many forces.

For the purpose of this discussion, it is only necessary to point out that a complete program for the control of distribution costs may well involve cost accounting work in connection with the appraisal of some of these factors in price determination. In this field, the accountant will find many opportunities to demonstrate the value of organized facts and figures as a basis for management control.

Conclusion

The view of distribution cost control which I have attempted to portray is a broad one, but it is no broader than the problem itself. Our experience in the past four or five years has confirmed what had previously seemed to be true, viz., the increasing importance of a more exact knowledge of the day-to-day marketing practices of a concern in relation to general market practices. The determination of market costs and their interpretation in terms of controlling policies is predicated upon the existence of a reliable body of facts bearing upon this relationship.

The accountant has a large part to play in securing the general acceptance of this point of view, just as in an earlier period his work made it easier for management to accept the principles of scientific control of production costs. The accountant must sense the job of management and adapt his presentation to meet management's point of view. In this respect, his department becomes more than a service unit to supply only what is called for. There seems to be the clear obligation to think ahead and plan ahead, and by showing what can be done with the few facts at hand, stimulate the desire for a more thoroughgoing program. If this leadership is exercised skillfully and at a pace which will not engender discouragement by the untimely projection of too vast an undertaking, there can be steady progress toward a better balanced and more efficient marketing process. The effort of the average concern acting singly may seem entirely lost in the overwhelming mass of activities which we know as general busi-

ness, but we should ever be mindful of the fact that it is the cumulative force of these tiny efforts that finally emerges as a general movement.

In recent years we have been tempted to wait upon some great external movement of national scope to rescue us from our difficulties. The National Recovery Administration experience, valuable as it was, should have convinced us that our help lies within ourselves, and that our economic salvation will come as the work of our own hands, each concern contributing its small share to the total effort. If we enter upon the task in this spirit, and keep ever foremost the paramount need of distribution cost data interpreted in terms of market-wide facts, we will hasten the day when we can say that the competitive system has justified itself by meeting the needs of our modern economics.

CHAIRMAN ANDERSON: There is a great deal of material for discussion in the masterful presentation that Mr. Sawyer has given us, but the hour is so late that I think we should dispense with the usual discussion. We will have an opportunity for discussion of Mr. Sawyer's paper this afternoon.

. . . The meeting adjourned at eleven-fifty o'clock . . .

SESSION VI
**DISTRIBUTION COST ANALYSIS
UNDER THE
ROBINSON-PATMAN ACT**

THURSDAY AFTERNOON, JUNE 23, 1938

H. A. ANDERSON, *Chairman*

HERBERT F. TAGGART is a native of South Dakota and was educated at the University of Michigan, from which institution he received his A. B. degree in 1920, his M. A. degree in 1922, and his Ph.D. degree in 1928. Except for two periods with the Federal Government and two years (1922-24) with the University of Kansas, Professor Taggart has taught accounting at the University of Michigan since 1920. During this period he has been associated in public accounting work with the firm of Paton and Ross of Ann Arbor. During N. R. A. days, Professor Taggart served as Chief of the Cost Accounting unit of the National Recovery Administration. During the past six months he has been on leave of absence from the University of Michigan serving the Federal Government in Washington as a Consultant on Distribution Costs with the Bureau of Foreign and Domestic Commerce. Professor Taggart is the author of several books and articles on accounting subjects.

H. J. OSTLUND is a graduate of Ohio Wesleyan University. He has been engaged in teaching accounting at the University of Minnesota for many years. In 1929, Professor Ostlund assumed the duties of Director of the Statistical Division of the National Wholesale Druggists Association, in which position he has had an excellent opportunity to deal with his favorite field of distribution costing. Professor Ostlund is a Past President of the Minneapolis Chapter and has contributed in the past to the *N. A. C. A. Bulletin* and other publications. In addition, he has prepared numerous pamphlets for the members of the National Wholesale Druggists Association.

ALBERT E. SAWYER is featured as a speaker in two sessions of this Convention. He is particularly well-equipped to participate in this panel discussion on "Distribution Cost Analysis Under the Robinson-Patman Act" because of his extensive background and practical experience in the fields of both accounting and law. As was mentioned in the biographical sketch preceding Session V, Mr. Sawyer, at the time he made this address, was associated with the Dennison Manufacturing Company, in general charge of the legal phase of the various state and federal laws regarding fair trade practice. At present he is connected with the law firm of Wise, Whitney & Canfield in New York City.

C. OLIVER WELLINGTON is a charter member of the Association and has participated in several previous conventions. He is a Certified Public Accountant of Massachusetts and New York and has long been active in the American Institute of Accountants, being Chairman of its Committee on Publications at the present time. Educated at Harvard, Mr. Wellington began his public accounting career with the Eastern Audit Company of Boston, later transferring to Gunn, Richards, and Company. In 1912, he joined the late Clinton H. Scovell as a Partner of Scovell, Wellington, and Company, and later transferred to the New York office of his firm. He is also a Partner of McKinsey, Wellington, and Company.

DISTRIBUTION COST ANALYSIS UNDER THE ROBINSON-PATMAN ACT

CHAIRMAN ANDERSON: We plan to keep this session just as informal as possible. We have some questions which we have discussed very briefly with the members of the panel, all of whom I introduced to you this morning.

The questions we have here come from various sources; some have been submitted here at the convention, some were mailed in, and some were prepared by the panel and by Headquarters. We hope that the discussion of these questions will bring in all the collateral ideas possible. Do not hesitate, when the discussion lags with the panel, to introduce any point which you want brought up. We will attempt to keep this discussion going at a lively pace.

I should like to present the members of the panel: Mr. Albert E. Sawyer of the Dennison Manufacturing Company, whom you all know; Professor Herbert F. Taggart of the University of Michigan; Mr. C. Oliver Wellington of McKinsey, Wellington and Company and Scovell, Wellington and Company; and Professor H. J. Ostlund of the University of Minnesota.

As we said this morning, this panel discussion is somewhat in the nature of an experiment. I recall with a good deal of pleasure some of the open forum discussions that we used to have at our conventions, and I trust this panel discussion will prove as profitable and interesting as the open forums were.

We will start by asking our attorney, Mr. Sawyer: "What has been the relationship between the cost accountant and attorney on the various Robinson-Patman actions?"

MR. SAWYER: The relation of the attorney and accountant in a Robinson-Patman case cannot as yet be definitely stated. It is still in the formative stage. In a large part the actions arising under the Act are what we know as administrative actions. In administrative procedure the formal relationships are somewhat less strictly defined than in the actions at law before the courts.

Usually, however, the attorney presents the case. The accountant is his expert witness. The accountant for the company works with

the attorney and the closer they work together the better the analysis of the case all the way through, the greater understanding each has of the problems of the other, and the more meat and substance gets into the presentation.

I think the accountant should assume a considerable responsibility in the arrangement of the material that he develops for the attorney. The attorney's forte in proceedings of this sort is in defining the issues. The accountant's forte lies in getting the facts and arranging them so that they carry over the points that they are both striving for.

MR. TAGGART: Might I add a word or two on that?

One thing the accountant wants to realize when he comes before the Federal Trade Commission in one of these cases is that he is dealing in legal problems and he has to present his information in such a way that it will go over with the lawyers. Here, as in all other cases (bankruptcy, income tax, etc.), the accountant is almost sure to play second fiddle to the lawyer, and he might as well realize that fact early in the game as later on. The type of presentation that would convince accountants who talk the same language is not necessarily the type of presentation that will be convincing from a legal standpoint. That has already been very well illustrated, I think, in one or two Robinson-Patman Act cases, notably in the Standard Brands case, where the presentations could have been substantially improved if the legal requirements as to evidence and so on had been fully appreciated and taken into account.

Mr. Sawyer is right, of course, in his statement that the lawyer runs the case and the accountant is primarily his expert witness. That is the attitude that the accountant must take. He cannot expect anybody to take his word for anything. He has to be prepared to defend himself thoroughly, completely, logically and in such a way as will carry weight with the legal profession that he has to contend with. It is not an easy matter by any means.

CHAIRMAN ANDERSON: Do the rules of evidence prevail in all of these hearings?

MR. SAWYER: Each administrative body has its own rules of procedure. The Federal Trade Commission have their own rules governing public hearings. The Tax Commission, Treasury Department, Tariff Commission, Customs, Agriculture and other Federal administrative bodies, as well as the various administrative bodies of

state and local governments each has its own procedural rules. Naturally, the courts have their own procedure, which usually is much more stringent than the procedure of the administrative tribunals.

However, I think we should realize that the rules of procedure under such statutes as the Robinson-Patman Act, are in the process of formation, so there is no such thing as a definite code of procedure to go by at the present time. The rule of reason controls very largely in administrative procedure.

MR. WELLINGTON: There is one point I should like to make. Naturally, I am somewhat prejudiced in favor of the accountant. Those of us who have to deal with cases of this sort should have in mind that prior to the actual hearing there is an excellent opportunity for the accountant to present material to the attorney and to help determine the significance of that material. Practically all attorneys will be glad to have the co-operation of the accountant, prior to the actual trial, in organizing the material and developing the relative significance of it, although, as Mr. Sawyer says, in the actual trial the attorney obviously must take the lead.

The better understanding the accountant has of the law, the more effective will be the use of the accountant's figures. From his knowledge of accountancy and the law, he will realize the significance of the figures and often bring up matters which the attorney, not being familiar with accounts, might not know about or appreciate in their full value to the case.

CHAIRMAN ANDERSON: I should like to ask some member of the panel who is in position to answer, if the cases that are coming up before the Federal Trade Commission are presented largely from the distribution cost angle or whether the manufacturing cost and administrative cost features are getting into the proofs of justification for the prices extended. Could any of you gentlemen answer that?

MR. TAGGART: I believe I can answer that. Of course, you realize that a good many cases come to the Commission in an informal way and are dismissed before complaint is issued. It is entirely possible that in those cases some manufacturing cost information has been presented. In cases which have resulted in complaints, however, so far as I am aware, there has been little presentation of manufacturing costs except in the Hollywood Hat case. Manufacturing cost information was presented there, largely, I think, for the sake of in-

dicating whether the products involved were similar in character and quality, and that, of course, was very important. From the stand-point of justifying price differentials, however, cases in which manufacturing cost information will be very important will probably be confined to those involving special order manufacture, such as stampings of die products, and possibly print shop products, where the making of the dies or the setting up of type, whatever the preliminary operation may be, benefits a few or many units. In that case, of course, difference in cost of manufacture will enter into it.

In the two outstanding cases where cost presentations have been made in defense of price differentials, however, namely Bird and Son and Standard Brands, manufacturing cost information has not been presented.

CHAIRMAN ANDERSON: The following question, which is along this line, has been submitted: "Do you think there is a possibility of getting the Federal Trade Commission to accept a price differential based on a saving in overhead due to a large order which results in the employment of what would otherwise be unused plant capacity?"

MR. TAGGART: If I am supposed to answer that, I doubt it very much indeed. I think the statements that have been publicly made with regard to policy in connection with the Act would preclude that. Whatever savings there may be will have to be prorated over all production. Of course, this leads to the question of whether the Commission is going to be willing to accept differential costs, and the Commission is definitely not going to be willing to accept differential costs. I think you can be fully and completely assured of that.

MR. WELLINGTON: Mr. Anderson, I understood you to use the term "administrative costs" as separate from selling and manufacturing costs. It seems to me that one good thing that will come out of the Robinson-Patman Act and its administration is the emphasis on proper analysis of costs other than manufacturing. I wonder, except in the case of a very large company, whether there is any such thing as "administrative costs." Are not all of the costs either manufacturing or selling? If you eliminate such items as stock transfers or strictly financial matters, cannot all of what used to be called "administrative expenses" be considered either as manufacturing or selling?

CHAIRMAN ANDERSON: Before we get down to some more specific questions on how to handle certain kinds of expenses, here is a question which suggests the general problem: "What, if any, type of routine cost analyses and reports are called for to protect one's position under the Robinson-Patman Act?"

MR. OSTLUND: I think this is the first time I have seen this question. I might say that in attempting to make one analysis for a manufacturer we found that he did not have available material that we needed in such form as we could use. It was necessary, therefore, to reanalyze his costs. As a matter of fact, most of his actual distribution costs were hidden under such a broad classification as "general and administrative expense."

It is quite evident that if the administrator and cost accountant are going to study their cost problems, they will have to set up their expense analysis on such a basis that whenever they encounter a problem they can make an analysis that covers that problem quickly and with reasonable accuracy.

CHAIRMAN ANDERSON: Professor Ostlund, could you say something about what actual effect the Robinson-Patman Act has had on pricing policies?

MR. OSTLUND: I cannot answer the question in exactly that form. I can speak for one industry only, and that is the drug industry with which I am most familiar. There the provisions of the Robinson-Patman Act have been given very careful consideration, because in the first place it appears that the provisions of the Act are essentially sound, so far as they influence pricing policies, and then, of course, no manufacturer who is interested in maintaining his good-will wants to be caught in practices that are not generally acceptable or that would be defined as illegal.

In general, the manufacturers are becoming aware of the fact that their price structures in many cases have not been ideal. If we had time to go into it in considerable detail we could demonstrate, I think, that the heavier discount differentials ought to be provided on the smaller sized orders, and that the discount differentials between the larger orders ought to be smaller. In other words, the percentage saving in cost on constant selling cost per order as between a \$5 and \$10 order is obviously much greater than it is as between a \$50 order and a \$100 order, and yet, in most cases, the price policies have been

such as to make a relatively small discount differential as between a \$5 and \$10 order, and a relatively larger one as between a \$50 and a \$100 order. Many manufacturers are becoming aware, I think, of the injustice of that policy and its inexpediency in economical distribution.

MR. TAGGART: That statement of Mr. Ostlund's tends to bring out a rather unexpected and more or less surprising feature of the working out of the Robinson-Patman Act. It is entirely possible that instead of protecting the small customer, careful, detailed distribution cost analysis is going to prove that he is so expensive to serve that he will find himself farther out in the cold than he was before. In other words, instead of having only a little disadvantage from the price standpoint he may find himself in the position of having a very large disadvantage.

I am inclined to think that some of the methods which have been used to analyze distribution cost in terms of customers have tended to overemphasize the excessive cost of small orders and small customers, but nevertheless it has been demonstrated clearly enough that the small orders and small customers are very expensive to handle, and that, as a matter of fact, manufacturers, wholesalers and others probably have been overly lenient in times past.

I have just one more thought to add on the question that was originally asked Mr. Ostlund. I do not know very much about the actual practice, but I have been assured by people with the Federal Trade Commission that a great many studies have been made by manufacturers with the Robinson-Patman Act in mind, which have shown that their pricing policies were bad. Such studies probably would not have been made if the Robinson-Patman Act had not been passed. It certainly behooves anyone whose operations may be affected by the Robinson-Patman Act to begin thinking about this question and get a method of distribution cost analysis under way. If he does that, he is very likely to find out some things about his business that he never knew before.

MR. OSTLUND: I should like to add one more word to what has been said by way of illustration. In one case we found that the cost to a manufacturer to put his salesman into the retail store and to fill the order from his own plant was approximately \$5. And we also found that the cost to fill the order in this particular case was about the same whether it was a \$5 order or a \$100 order. You will

observe that when that salesman got in there and took the \$5 order, the cost of taking that order was 100 per cent of the amount of the order, whereas on a \$10 order it was 50 per cent, on a \$50 order it was 10 per cent, on a \$100 order 5 per cent, and on a \$500 order it was only 1 per cent. In other words, there was a 50 per cent differential between a \$5 and a \$10 order, a 25 per cent differential as between a \$5 and a \$20 order, and only a 5 per cent differential as between a \$20 order and a \$100 order, and a 4 per cent saving as between a \$100 order and a \$500 order.

That is what I meant when I said that our discount lines do not follow any too well the cost lines at the present time. Of course, that happens to be a case where the size of the order did not make a great deal of difference in the cost of filling it, and also where the salesmen were working on a salary basis rather than a commission basis.

CHAIRMAN ANDERSON: We have here one specific question submitted this morning: "Assume a concern sells to wholesalers and retailers, and pays its salesmen on a commission basis so adjusted that the salesmen's commission is greater on sales made to retailers than to wholesalers. Further, assume this difference is equal to the difference in price made to the two classes of trade. Under this arrangement, would these differences in commission be considered difference in distribution cost which could be used to justify the difference in price to these two classes of trade?"

As I see that question, they are simply giving away to the salesmen the differential between the price to the retailer and the price to the wholesaler.

MR. SAWYER: This question presents a very sizeable problem, one which we could talk about for a considerable length of time.

First, I should like to point out that in approaching a problem like this, the very first question to ask is: Is there an injury to competition? If the wholesaler is a true wholesaler and the retailer is a true retailer, we have no Robinson-Patman problem at all, because each operates in his own field and there cannot be the necessary injury to competition which gives the Federal Trade Commission jurisdiction in the case. If the wholesaler does sell at retail (and many do), and if he sells the same group of customers, there is the possibility that a Robinson-Patman problem would be presented—at least a case of some injury to competition might be made out.

Under those circumstances, so long as there was a direct payment

to the salesmen equal to or greater than the price differential there would be some ground for saying that there would be no case.

I think in any situation of this sort the circumstances can vary greatly and it is rather hard to make a categorical yes- or no-answer.

CHAIRMAN ANDERSON: I recall that in some of the discussions we have had, someone made the statement that in case you sold a jobber or wholesaler who was also a retailer it was necessary to determine how much of his sales were retail and how much were wholesale before you actually billed him for the merchandise. Is there really any support for that statement?

MR. SAWYER: I think there is. Everyone has recognized that as a potential problem. As to practical ways in which it can be met, I suppose there are many answers. The manufacturer who sells a wholesaler who at the same time does a retail business is more or less at his mercy and must trust in the good faith of the wholesaler to confine his activities along traditional lines. If, in fact, the wholesaler uses that differential to cut deeply into the trade of the retailer, the manufacturer and the wholesaler, jointly, will probably find themselves faced with a complaint. However, it is very difficult in practice, where the manufacturer is selling hundreds of wholesalers over the country, to make a system foolproof. In approaching practical problems like that, I think most manufacturers would come to the point where they would rather take the chance that their wholesalers would use their differential wisely and not attempt to create the situation which would give rise to an actionable injury to the competitor of the retailer.

CHAIRMAN ANDERSON: We have a rather large volume of questions revolving around the classification of products or the basis of differentials for extending discounts.

There has been a question submitted as to how classifications of customers and of products may be made. In connection with that may I include this other question that we have here: "Is it not true that cumulative quantity discounts based on quantity purchased over a period of time are almost impossible to justify on a cost saving basis? Does not the Robinson-Patman Act practically force the elimination of cumulative quantity discounts?"

Of course, as a matter of fact, it hasn't, has it?

MR. SAWYER: I do not think it has. I think the cumulative discount, or the discount on annual purchases, is one method of reflecting cost savings. There are very practical difficulties in administering such a scheme so that it will not be abused, and it is rather difficult to sell it to the trade. I think it stands as one method under some circumstances, and limited to those circumstances, it could be worked out in a practical fashion. I think it is too early to say that the Commission has proscribed it as a method under all circumstances.

MR. WELLINGTON: I should like to ask Mr. Sawyer how a quantity differential spread over a year results in any savings. If there is not an increased quantity in each individual shipment, where is there a saving?

MR. SAWYER: I must admit that the classification is rather limited. The saving is in the type of services you give the account and the number of calls that are made by the salesman on the account for the entire operation of the account. In some lines, annual dollar volume reflects the type of sales service which is required. It is true you cannot have these types graded nicely. They are going to be in rather substantial jumps. However, the quantity of annual purchases sometimes characterizes a class of accounts which can be so treated that you can see a very definite saving in solicitation cost.

MR. WELLINGTON: That saving, as I understand it, can only be in the cost of solicitation.

MR. SAWYER: Very largely in that field, and the administrative expense involved. What are known as service calls in some lines amounts to a considerable item, and these may be a constant charge not variable on the dollar purchase basis.

MR. OSTLUND: There is one point I should like to add, because that happens to be a rather troublesome problem in those territories where those volume discounts are being offered. I have gathered some material (which I have not digested yet) with the hope that we will come out with something rather definite on the subject. For the time being this seems to be what is in the picture.

We had expected that, generally speaking, a large customer, say one who buys \$500 a month, would buy in larger unit quantities than one who buys, we will say, \$50 a month. But the surprising thing seems to be that instead of buying large quantities at a time, he buys more frequently and possibly even in smaller unit quantities than the smaller customer, and in an industry where the cost per unit purchased is the important factor in determining the cost of distribution, that is rather important.

To illustrate that point, a few years ago we had an analysis made of the purchases of a chain store in one of our western cities. That particular chain was buying about \$1,500 worth a month from a local wholesale druggist, and asked for a volume discount on the basis of that rather large volume. The wholesaler, however, made an analysis of the business and discovered that the average unit of purchase on orders of that kind was \$1.29, that is, the average item on the order was \$1.29. On the basis of that small number of items ordered, each order this chain placed was not carrying its fair share of the wholesaler's overhead. On an over-all cost basis that wholesaler was losing money on that apparently excellent business.

On the other hand, we have analyzed some rather small accounts in the same industry, such as industrial accounts among the steel plants in the Pittsburgh area, where, in buying for their hospitals and first aid stations, the total purchases are relatively small per month but the unit of purchase is very large, and where consequently the cost of handling those orders is relatively small.

To what extent we are going to get information that will definitely prove whether or not the large volume buyer is a more economical buyer than the relatively small volume buyer we do not yet know, but we hope to have that information available before very long.

CHAIRMAN ANDERSON: Word has come up that we have overlooked a couple of gentlemen who wanted to ask questions. I want to apologize for that. Are there some questions from the floor now?

J. P. COMPTON (*Assistant Secretary-Treasurer, American Asphalt Roof Corp., Kansas City, Mo.*): Has the Federal Trade Commission indicated its acceptance or approval of any specific forms for the presentation of evidence in hearings?

MR. SAWYER: No, the Federal Trade Commission has not crystallized its requirements in that respect. I think I am right in

saying that each case is being handled on its own particular merits, so far as methods of presentation are concerned.

H. A. GIDDINGS (*Staff Accountant, Leach, Rindfleisch & Scott, Richmond, Va.*): I wish to make an observation rather than to ask an actual question. In considering the matter of distribution cost in the light of the Robinson-Patman Act, I think the tail may be wagging the dog. It seems to me that when we consider this matter of distribution costs, which is an extremely large subject, only in the light of the Robinson-Patman Act we are limiting ourselves too much. I find that there is a growing feeling that the Robinson-Patman Act is not as important as we once felt. We are not developing control of distribution costs which seems to be an important field. We criticize the production department if it spends a dime more than it should, but the whole group of salesmen incur expenses of thousands of dollars that we have not made any very serious effort to analyze and control in anything like the degree in which we analyze and control production costs. It seems that here is a field that is wide open. I wonder if this field of distribution analysis and control is to be covered this afternoon, or if the discussion is to be confined strictly to the Robinson-Patman Act. I believe distribution costing is going to become an exceedingly vital part of our cost work, and it is very fundamental.

CHAIRMAN ANDERSON: I think, Mr. Giddings, you are entirely right, but of course the morning session was given over very largely to control of distribution costs. We had a very able presentation. Unfortunately, we did not have enough time then for discussion. It is perfectly all right with this panel, I know, to have this discussion take any trend that you want. It is your panel. We have no pride of authorship and no corner on the discussion. If you do not want to talk about the Robinson-Patman Act and you do want to talk about some specific question on distribution cost, it is entirely satisfactory to the panel.

MR. GIDDINGS: There are so many things to be considered in connection with general distribution cost that it might be more valuable if the Robinson-Patman Act were forgotten.

CHAIRMAN ANDERSON: That is probably true, but you are going to have quite a time forgetting it.

J. C. METSCH (*Cost Accountant, Lehn & Fink Products Co., Bloomfield, N. J.*): Suppose a manufacturer bills his customers with a service charge in the form of a flat amount for handling the order. Suppose this charge does not vary with the number of items to be billed or the number of items to be packed, but is purely a flat charge for handling the order assessed against each customer. Is that manufacturer in any way violating provisions of the Robinson-Patman Act?

MR. SAWYER: I think the setting up of charges of that character when offered generally to the trade on an equal basis can hardly fall under the provisions of the Act. Such charges would not create the injury to competition which is a prerequisite to a case under the Act.

CHAIRMAN ANDERSON: We have one question just submitted in writing by Mr. R. J. Bernard of New Haven. He asks: "What is the attitude of the Federal Trade Commission on the practice of allowing a customer a cash discount beyond the regular cash discount period?"

MR. TAGGART: It is exceedingly dangerous to say what the attitude of the Federal Trade Commission will be, but it seems to me the answer to that is fairly obvious, provided all customers are treated alike. There is nothing in the Act to prevent a manufacturer from allowing a cash discount beyond the stipulated period, provided everybody gets the same chance. On the other hand, if the manufacturer allows some people to do it and not others, then of course, he runs into difficulties. That would constitute price discrimination.

RAEFORD BAILEY (*Office Manager, Mother's Cake & Cookie Co., San Francisco, Calif.*): I should like to ask a definite question in regard to the attitude of the Commission on the question of discounts. Is it necessary for a firm which is called into a hearing to prove that their savings are the exact amount of the discount or merely that their savings at least equal the amount of discount?

MR. TAGGART: The saving must be at least as much as the discount. I do not think the Commission is going to insist on price equivalence down to the fractional part of a cent, however. Certainly the Commission's attorneys and representatives have not taken that

attitude so far. On the other hand, there is nothing in the Act which makes it necessary to give away all the savings, by any means. If you make a 10 per cent saving as between two customers, there is no requirement that you give the 10 per cent away. You can keep 5 per cent for yourself and give 5 per cent away.

MR. SAWYER: You can keep it all if you want to.

DOUGLASS M. BARROWS (*Assistant Secretary, El Dorado Oil Works, San Francisco, Calif.*): I should like to ask a question of Mr. Wellington. He made a statement a little while ago to the effect that administrative expense was not involved. I should like to ask him whether, if we get one hundred orders for \$10 apiece and one order for \$1,000, the order for \$1,000 does not involve a great deal less administrative expense? We have only one credit investigation, one ledger entry, one statement, one postage stamp, about half a minute of a girl's time in making the entry, as against 100 times that for the entries on the \$10 customers, overlooking the cost of office work which is a little aside from the selling.

MR. WELLINGTON: I am very glad that question was asked. I was making a distinction between what are normally called "administrative expenses" and what I would term either manufacturing or selling. The expenses just mentioned for handling an order through the office I would call selling expenses. I would not call them administrative expenses. It seems to me that selling expenses cover a great deal more than merely obtaining an order.

The gentleman indicates that he doesn't like my answer. It is a good idea in the office and elsewhere to analyze these so-called "administrative expenses" to see what is back of them. Are these expenses caused by dealing with customers, are they caused by dealing with vendors, or are they caused by dealing with labor or some other manufacturing phases of the business? When you have grouped those expenses relating to manufacturing, including the purchasing of materials and supplies, and all those relating to customer, you will find nothing left in the "administrative expenses" except, possibly, handling stock transfers or other similar corporate or financial items.

Obviously, if in a particular company we do have a classification of "administrative expenses," and we leave in that classification items such as putting an order through the books and handling credits and collections, then we must determine whether there is a differential on

those items. It does cost less to put through one order for \$1,000 than to put through ten orders for \$100 each. If you prefer to call such expenses "administrative expenses," then you must analyze these administrative expenses to work up a proper defense under the Robinson-Patman Act, in just the same way as I would analyze what I designate as selling or distribution expenses.

A. G. BLOCK (*Treasurer, Barnes Drill Co., Rockford, Ill.*): We are engaged in the manufacture of machinery. I should like to ask what constitutes a published or printed price under the Robinson-Patman Act. Does the mere fact that we make a quotation on machines make the price quoted a published price? Do we have to have a price list in the hands of customers to constitute such a price?

In order to be involved under the Act, as I understand it, a competitor must make a complaint, and in order to make that complaint he must have a basis on which to make it, and must take into consideration the printed or published price. Is that true?

MR. SAWYER: That is a question of proof. Naturally, the best proof is the printed price list itself, since that is the published intentions of a manufacturer in selling.

However, I do not think you are limited to a printed list. I think you can procure statements of numerous individuals to whom quotations have been made. Then it would rest wholly on the credibility of such evidence. I would not say that you were limited by any means to the published list. I think there are other types of evidence that might be equally persuasive. It is a question of the validity of the facts.

MR. OSTLUND: May I ask one question? To whom are you selling these machines?

MR. BLOCK: The machines are sold to jobbers and the jobbers sell them to the trade. The jobber has our price list, which is a mimeographed list. I was wondering whether such a list would be considered as the published price. The customer does not have that price list.

MR. OSTLUND: Your problem under the Robinson-Patman Act, then, would be one of your relation to your jobbers as competitors in the same territory. Obviously, if you are selling machines of

the same type and quality to these competing jobbers, then of course your action would come under the scrutiny of the Federal Trade Commission.

MR. WELLINGTON: You wouldn't be involved unless you sold to two different jobbers and at a different price. If you sell to all jobbers at the same price there is no problem.

MR. BLOCK: We have exclusive jobbers. We also have competitors. We have one jobber and a competitor has another jobber. If we quote one price today and if he quotes another price tomorrow, the competitor has ground for claiming that we have violated the Act.

MR. WELLINGTON: No, the competing manufacturer doesn't come under the Act. The Act is effective only if one of your jobbers is competing with another of your jobbers.

CHAIRMAN ANDERSON: We have a question submitted by Mr. W. R. McCormick of Minneapolis, which Mr. Sawyer will present.

MR. SAWYER: The question is this: "If you are selling two customers an identical quantity and quality of merchandise worth \$100 at list price, but lose the first customer to a competitor at a price of about \$90, according to the statement of the buyer (and you rely on the statement of the buyer, I take it), and then subsequently regain the order at \$90, is it a fact that the only action which can be brought is action by the second customer who paid \$100 for the identical merchandise?"

I think that would depend somewhat on the facts in the case. He is in the best position to bring the action. If there were numerous buyers and customers in the same locality buying the same type of merchandise on this list price, then there would be more customers injured and any injured party could bring an action.

Now there is a second part of this question: "Is it true that the action can only be brought provided the second customer can produce proof?"

Well, of course, any action must be supported by proof of the injury to competition, and therefore must be reasonable. He must prove, eventually, that the price discrimination was made.

There is a third part of the question: "Is it true that action can

only be brought provided the second customer is in the same territory or the same line of business?" Those two things are pertinent to the fundamental question of injury to competition. When you come before the Federal Trade Commission with a complaint under the Robinson-Patman Act, your first job is to prove that you have been injured competitively. That necessarily is the place to begin. Part of that proof may involve whether or not you are in the same territory.

I can imagine a case where my customer in Portland, Maine, could be injured by the activities of my customer in Portland, Oregon, where both were selling in the same market. I think that is part of the initial analysis of the proof of injury to competition.

MR. WELLINGTON: I should like to ask Mr. Sawyer a question in order to clarify that illustration. If the man who buys \$100 worth at \$90 keeps the \$10 himself and does not cut the retail price, is there any injury under the Robinson-Patman Act?

MR. SAWYER: I should say in most cases, no, because the injury to competition would be most difficult to prove.

MR. TAGGART: That is a very interesting question. As a matter of fact, it has come up in the Standard Brands case. As you may know, the Standard Brands case relates to baker's yeast which is a necessary ingredient of bread. The greatest difference caused by the price differential in the cost of a loaf of bread was found to be only one-seventh of a cent. That was the absolute maximum. Of course, in most cases it would be very much less than that. The question now arises: Can a baker sell a loaf of bread more cheaply because it cost him a seventh of one cent less? The answer to that is fairly clear. He cannot. However, the Commission's attorneys have taken the position that in that case the injury to competition lies not in the ability of the favored customer to reduce his prices but in the ability to use the money that he saves for sales promotion, for customer entertainment, for making the product look a little better, or possibly (although this wasn't brought out very clearly) for temporary price cuts or localized price cuts.

In other words, it is not necessary to prove that the customer has lowered his prices in order to prove injury to competition. At least I suspect that that will be the final outcome of this particular case. It is not necessary to prove that the amount of discrimination is great

enough to enable the customer to lower his prices. In the Standard Brands case, the Commission's attorneys are taking the attitude that the mere fact that the favored customer is able to save money on the deal, which money he can use for purposes which will give him an advantage over his less favored competitors, may constitute the required injury to competition.

MR. WELLINGTON: Of course, there is no assurance that, even if the Commission hands down such a decision, the courts will uphold it.

MR. TAGGART: Very true, of course.

CHAIRMAN ANDERSON: Here is a question that gets down to the practical aspect that Mr. Giddings was talking about: "As a group, the large customers of my company have good credit standings and pay their bills when due. Over a period of years we have had no bad debt losses from this group. Our credit and collection expense and bad debt losses can all be traceable to the smaller customers. Would this be sufficient justification for a price differential?"

MR. OSTLUND: That is a rather general question. It is one that we have been struggling with, not from the Robinson-Patman Act angle but from the standpoint of administration of credit departments and of credit losses.

We know, for example, that in many instances probably half of the customers require very little credit analysis and credit scrutiny. They can be watched sufficiently well just from ledger experience. As a matter of fact, I know one manufacturer who does not have what might be called a credit department at all because he is serving about 225 wholesalers, all of whom have excellent credit ratings. On the other hand, in some situations we find that one-half or one-third of the customers are the ones who really give rise to the need of a very good credit department. It has been our custom pretty generally to apply credit costs and the loss from bad accounts as a flat percentage of sales, but we are trying to get away from that so far as possible and throw those charges, for administrative purposes at least, against that particular group of customers who actually give rise to these credit problems. That is not the usual cost analysis by any means, but I think it is the type of analysis that would be very fruitful if those who have to do with the administration of credit would apply it more frequently.

MR. TAGGART: My own feeling on that particular question is that the Commission would be likely to entertain evidence on that point with at least some degree of favor. They might not be willing to accept the exact method used, but it seems to me that if it can be shown that this particular service, namely, credit, actually affects only a certain class of customers, the Commission would not be unwilling to permit it to be charged against the business of that class of customers, the only requirement being, of course, that the respondent in the case be able to make a convincing showing of the facts. There is nothing in the Act itself or in its administration to date which would preclude that type of presentation.

MR. GIDDINGS: Following up that matter, it seems to me that by proper cost analysis we can kill two birds with one stone. We can gain protection under the Robinson-Patman Act and at the same time get the far greater benefit of analysis of selling costs for control purposes. Do you gentlemen have specific suggestions as to methods of making such analyses? Do you advocate the analysis of distribution cost by the same methods as used for manufacturing cost? Would you, for example, attempt to break down direct expense of salesmen's contacts, advertising, and various other elements of merchandising expense to approximately the same degree as you would break down your various items of manufacturing expense? Would you break down the expenses by lines of products, by territories, by salesmen or on what basis?

I feel that if we had this type of information it would be very helpful, not only to protect ourselves in case of citation under the Robinson-Patman Act, but in getting a better control of selling expenses.

MR. OSTLUND: Since that is a very general question I would like to say that your problems of distribution cost are in many respects essentially different from your problems of manufacturing cost.

Remember that your manufacturing executive, so far as his costs are concerned, is interested in the cost per unit of product. When he finally gets the finished product into his finished goods inventory, his costing job is done so far as his books are concerned.

The sales manager is working with an entirely different set of units. Part of the time, to be sure, he may be interested in commodity units and he will want a distribution cost per unit in commodities. We get that on occasion. On the other hand, another

important unit he is working with is the customer, and that requires an entirely different cost setup and cost analysis. That is to say, you want to make a commodity analysis and then break it down further into a customer analysis or territory analysis. You have to make a survey or analysis for each case. The methods you would use to apply your various expenses to a customer, to an order or to a commodity will differ. You cannot use the same basis of application for all purposes. Each cost analysis has to be a separate cost analysis quite independent from the others that are being made. That is the reason that you cannot properly speak of such a thing as a distribution cost system in the sense that you are speaking of a manufacturing cost system.

MR. GIDDINGS: Rather than struggle with cost records when you are trying to prove your case, can you not work out an application of the same principles that you use for manufacturing in order to get the commodity price in line in all territories?

MR. OSTLUND: We have tried to do this very thing in connection with the wholesale industry where we need cost by commodity, by customer, by salesman, by territory, and by orders. The point is that so far as distribution cost analyses are concerned, it is not something that you can carry on currently. You make a check-up once in a while. That means that your expense accounts for the distributive end of the business should be carried in such detail that you do not have to reanalyze them when you come up against such an emergency as that. In other words, it becomes necessary to segregate country and city business, or your business with wholesalers and with retailers. You should have the salaries or commissions of salesmen who deal with those classes of customers segregated so that you do not have to go to the trouble of making a resegregation on a moment's notice. That is the thing I was driving at a few moments ago in another connection. The accountant's problem in distribution costs is merely one of having his costs in such detail that he does not get into one account elements that are entirely diverse in nature. It is a very difficult thing to do. I may give one illustration, namely, the telephone expense in a wholesale house. The telephone bill is paid as one bill at the end of the month. Actually, probably eight out of twelve trunk lines exist by virtue of the fact that you want enough trunk lines so that the customer will never get a busy signal when calling up the house for his daily order, which means definitely that

a large portion of the telephone expense is selling expense. I think possibly that will have some bearing on the question raised as to whether or not office expense should be called selling expense. You have here a very good illustration of office expense that is partly a selling expense, partly general office expense, and so forth.

To repeat, the important thing in dealing with distribution cost is to have your expenses analyzed in sufficient detail so that you can put them together to solve promptly any particular problem that may come up.

One of the greatest difficulties that we encounter in making analyses of that sort is that we usually find the expense account is just one hodgepodge. There is a general expense account or a general and administrative expense account, with all sorts of various expenses that have a different relation to orders and customers and what not.

MR. SAWYER: I should like to add just a word to that discussion. I think you need something a little bit more than just an orderly arrangement of your expenses. I think there are additional facts which ought to be kept currently and added, in some cases, permanently to the accountant's work. I refer to the sort of thing I mentioned and illustrated this morning, a call card which each salesman makes out each time he calls on a customer. Now, that is not a record of expense, but it creates an accumulated body of fact which is highly important and highly necessary in an analysis of distribution costs of a concern selling on a national basis through all sorts of trade channels.

It is true that you do not have a cost system in the same sense as in factory accounting where you have regular cost reports of certain types coming out all the time, but you do need a regular compilation of these basic facts so that you can make your cost study of this fact or that fact from time to time.

We found that to be very true recently in our own organization when we started to see the way in which the Robinson-Patman Act affected us. We had four years of call cards with approximations of time on each card, which gave us hundreds of thousands of instances with which to work. These facts gave us an insight into the problem which we could not have obtained otherwise. If we had just decided a year ago that we wanted that information, we would have been limited at the most to six or eight months. As it was, we were able to dig back into the punched cards for four years and get

a really comparable picture. I think you will accept that slight amendment to your presentation.

MR. OSTLUND: I think I can second that statement because I have had the experience at least three times within the last year of having to put a concern to work over a period of months gathering just such statistics, as they were not previously available.

MR. WELLINGTON: I should like to say just a word from the accountant's standpoint on the problem or question raised. It seems to me we can go much further than many concerns already have gone in setting up proper accounts for distribution or selling expenses. These expenses can be analyzed and grouped by function in much the same way as we group our manufacturing expenses. For instance, we have certain expenses that vary with the floor space. We have certain other expenses that vary with the dollar value of the stock. We have still other expenses that vary with the weight or the cubical contents of the stock. It seems to me highly desirable that these analyses and groupings should be made as a part of current book-keeping, to save as much time as possible in putting together a particular case when that case comes up.

One of the questions I had for discussion was the bases for apportioning distribution costs. I made notes that, for example, on storage of finished stock, you have a rent factor, which presumably would be per pound or per square foot. You have taxes and insurance on your finished stock, which would be either on the basis of dollars of sale or dollars of cost. You have the handling of your finished stock, the labor and the in-freight, if you ship from the factory to the warehouse. That presumably would be per pound or per square foot. You have shipping from the warehouse, which might be in proportion to orders, at a rate per order plus a rate per pound, or per cubic foot. In the same manner, you have the out-freight, which presumably would be on a per pound or per cubic foot basis multiplied by the rate to each territory, with differentials between carload shipments and less-than-carload shipments.

I merely mention these as some of the kinds of groupings that can be made and I believe should be made by every company where selling and distribution expenses are large.

MR. GIDDINGS: Is there any reason why we cannot control these items?

MR. WELLINGTON: I see no reason why standards cannot be set for the groups in the same way that we set standards for similar groups of manufacturing expenses. The standards can be predicated on a certain volume and should be developed on a flexible basis to vary as the volume increases or decreases.

EMORY A. AUSTIN (*Auditor, Hammermill Paper Co., Erie, Pa.*): I want to question Mr. Wellington's recommendation with the thought in mind that there is a variance in the points of view. It is desirable to recognize the functional nature of your distribution expense but not necessary, in my opinion, to carry the distribution through your accounts. Your method of allocation may or may not apply in a specific case involving the Robinson-Patman Act. I think that our first duty, if we have one (and I think we do have one), is to the customer and to the function. We have to be very careful about that. I do not think we should start out with a method of cut-and-dried allocation of our distribution expense just for the sake of doing something.

MR. WELLINGTON: May I have a word more on that subject? I would follow Mr. Sawyer's suggestion for gathering statistics and I would also make the necessary classification of selling and distribution expenses in logical groups by functions. The combination of the two will give you the answer. If the grouping is done correctly and logically, you will not have to do it over again in order to apply your units which you will determine through your punched cards or other statistical data.

MR. TAGGART: I think anybody who reads the record of some of these Robinson-Patman cases will learn a lot. Incidentally, if you want to know anything about procedure or form or any other matters, the thing to do is to go to Washington and read those records, providing you have the time. Anybody who looks over those records can read between the lines and see the consternation and dismay of some of the concerns that have been called upon to give analyses of their distribution costs which they were utterly unprepared to give and never even thought possible. You will be likely to take home a warning that it might be a good idea to have a few of these underlying statistics available.

Take Standard Brands, for example. They had assumed, in fact they probably would have stated, that it was impossible to define costs

in terms of customer classes, but they had to do it. So they hired a firm of accountants who spent six long and weary months. They made time studies of salesmen's activities; they went into all of the intricacies of the distribution system used by that company, and finally emerged with an answer. But if the company had taken time by the forelock and had been prepared in advance, a much more convincing case could have been presented, and at considerably smaller cost, both in money and in sweat and anxiety.

MR. AUSTIN: I agree with the thought of Mr. Wellington, but I just want to sound a note of warning on setting up a method of allocation which may not serve your purpose at the time you want to get the information. Someone has brought out the point that you must be provided with a means of getting that information, and it is a matter for the individual company to decide how to go about it. Perhaps, in some cases, it would be much cheaper to call in a firm of accountants, or do the job yourself when it is necessary. I merely wanted to sound that note.

CHAIRMAN ANDERSON: We have had half a dozen questions turned in during the last few minutes. I will ask Mr. Sawyer to take this first one which was submitted by Mr. H. L. Belanger, of Escanaba, Michigan, from the Milwaukee Chapter.

MR. SAWYER: This is one of those teasing questions which I rather hoped we might pass by. Since we are called upon, we will face it.

"Can a manufacturer sell to a consumer at a lower price than to a jobber, assuming that the consumer's volume is greater?"

The answer to that, I think, is again dependent somewhat on the facts. I assume that we are dealing here with items ordinarily sold at resale by the jobber, which is not always the case. It would depend somewhat on how much larger that volume was. If it were larger than any volume ordinarily sold by jobbers, it would be taken completely out of that field, since the jobber never aspired to that business.

I think one thing stands out under the Act. The Act does not preserve a markup for the middleman. The concern is in competition with itself or its own customers in this respect, but I doubt very much whether a Robinson-Patman complaint from the standpoint of the jobber would stand very much of a chance under those circumstances.

I think the necessary injury to competition would be a little bit difficult to sustain. The manufacturer would have the right, of course, to sell to consumers directly and eliminate this wholesaler altogether, and if he did that there would be no complaint under any circumstances.

MR. TAGGART: I have a question by Mr. S. Auerbach of Toledo: "If the distribution costs were broken down so accurately that different prices would be charged to the customers according to their "cost to the firm," would this be in violation of the Act as to favored customers?"

It sounds as if Mr. Auerbach has in mind a scheme of breaking down distribution cost which is so complete that the cost of servicing each individual customer would be known. On occasion that might be done. Generally speaking, however, customers are classified in one way or another, either as to volume of purchases over a period, as to size of regular orders, as to location, as to function, or in some similar way.

There is nothing in the Act that would prevent anybody from determining costs in terms of individual customers and charging them prices accordingly. In other words, you can have a separate price for each individual customer, provided you can justify it. I should think that might be rather difficult in general, but where the number of customers is small and where the differences between them are sufficiently distinct to serve as a basis for cost analysis, I see no reason why it would be unlawful to charge a price to each such customer according to his own individual cost characteristics.

CHAIRMAN ANDERSON: Here are a couple of questions submitted by Mr. E. W. Krueger of Chicago. I think probably you can answer these categorically, yes or no. "Is it true that action can only be started by an injured party?"

MR. SAWYER: Yes.

CHAIRMAN ANDERSON: "If so, a company that has not complied with the provisions of the Act is not subject to investigation and prosecution by the Commission?"

I assume that he means that unless a complaint has been filed by an injured party, the Commission can do nothing. Is that a fact, Mr. Sawyer?

MR. SAWYER: The Commission has no jurisdiction without proof of injury to competition, so I would take it that the question as submitted means that there is no existing proof. It is wholly theoretical. Under those circumstances, I doubt whether the Commission would take the initiative. There is nothing in the Act to prevent them from taking the initiative, and there is nothing that requires that the complaint come from the outside, but there is a very definite requirement that there be proof of injury to competition.

CHAIRMAN ANDERSON: Is that an answer, Mr. Krueger?

E. W. KRUEGER (*Walton, Joplin, Langer & Co., Chicago, Ill.*): Yes, partially, but suppose it is a case of an industry, and the Commission wants to investigate? Can they go into the records and say, "You did violate the Act and we can prosecute you on that basis."

MR. SAWYER: I would refer you to the Commission's opinion in the case of the Window Glass Manufacturers Association, which is the only case involving the Robinson-Patman Act, and at the same time involving an entire industry. I do not know where that complaint originated or how it came about, but the Commission did declare that the classification of customers employed by that trade association or members of that trade association constituted a violation of the Robinson-Patman Act on the part of each member. I assume that the complaint did come from the outside, although I am not sure.

MR. KRUEGER: The point is that the Commission has the right to originate or start action as the law now exists?

MR. SAWYER: Yes, they can proceed on their own initiative but they are under the same handicap as they are when the complaint comes from the outside. They have to establish jurisdiction in either case.

CHAIRMAN ANDERSON: We have a question from Mr. J. W. Milnamow of Chicago.

MR. OSTLUND: The question is: "What basis of allocation of expenses to lines of commodities having varied margins of gross profit will be recognized by the Commission, assuming that those expenses which can be allocated on a per order or per unit basis have been handled in that manner?"

I do not know that I am quite sure what the questioner means, but if I misinterpret his question I hope he will set me right.

In the first place, he says the issue would arise only with respect to particular commodities. I assume that each commodity has its own gross margin.

If the gross margin on each commodity remains constant, even if the different commodities have different gross margins, I do not see that a problem exists, so far as the Commission is concerned, because there would be no price discrimination between customers under those conditions. In other words, it seems to me there is no issue raised, so far as the Robinson-Patman Act is concerned, by this particular situation.

CHAIRMAN ANDERSON: I have here a question by Mr. C. J. Byrne of Louisville, Kentucky: "Can standard costs for selling expenses be used in defending prices or will the Commission only allow actual cost?"

MR. SAWYER: If the standard cost system is one that has been employed for a long period of time in the concern and is not hatched up for a particular defense, I believe it may stand a chance of surviving. There is a stronger burden upon the defendant in that case, or the respondent, as the Federal Trade Commission calls him. It is a heavier task to prove the reasonableness of the standard cost under these circumstances, but I would not rule it out. I would think it is much too early in the administration of this Act to say that the standard cost is proscribed entirely. It would seem to be a little bit more difficult to prove your case. Certainly, if a standard cost system has been in operation for a long time in a concern and was really a good piece of workmanship all the way through it might, *and if properly presented*, it would carry a great deal of weight with the Commission. The Commission has yet to indicate that it would not consider standard costs under those circumstances.

CHAIRMAN ANDERSON: Val, you haven't proposed your question yet.

VAL W. COLLINS (*Controller and Assistant Treasurer, Rome Cable Corp., Rome, N. Y.*): The question I have in mind concerns the price of steel or any other metal, where the published price is apparently the price at a basing point with freight to be added. I

wanted to know if any case has ever been decided by the Commission where a manufacturer has disregarded that basing point rate and charged only the actual rate, thereby giving a customer an advantage over what the competitor would give him from a more distant point.

MR. SAWYER: There have been no cases involving that particular item as yet. If you want to speculate on the whole matter of basing points, that is quite a large question. You can discriminate in that way by having one policy for one customer and another policy for another. That is just like any other discrimination. My own opinion is that the Federal Trade Commission would have a very difficult time in enforcing a strict f.o.b. mill policy. In some industries it may be practicable. In most industries such a policy would be utterly impracticable.

MR. WELLINGTON: I think Mr. Collins' question brought up another angle of the problem. If a company did give a near-by customer a lower price because of less cost of delivery to that customer, would there be violation of the Robinson-Patman Act?

It seems to me that the differential could actually be worked out and that there would be no violation. The only person who could object would be a customer. The manufacturer's competitor cannot object. Therefore, if the manufacturer prefers to use the basing point system and ships to a customer on a delivered basis, and, as Mr. Sawyer says, if he gives all his customers the same rate, there would be no question under the Robinson-Patman Act. He might upset all competitive conditions in his own industry, but that is a different problem.

CHAIRMAN ANDERSON: Mr. W. H. Abney of Chicago has just submitted a question and we will ask Professor Taggart to answer it.

MR. TAGGART: "Where ordinarily a salaried salesman's cost to sell is computed as a percentage of the sales actually made, would this cost be acceptable to the Commission, or would calls made for which no business is obtained, have to bear part of this salesman's cost?"

Here we are getting into the realm of speculation again. Thus far the Commission has not laid down any rules as to how salesmen's costs are to be applied. I strongly suspect the Commission never will

lay down any such rules. The precise method must be left to the individual case. It seems to me that the application of salesmen's cost on the basis of sales dollars is, in general, a rather poor method. The call basis was used in the Standard Brands case and was not questioned very severely by the Commission's accountants and attorneys. Whether the sales dollar basis would have been questioned if it had been used, I am in no position to say. Presumably the sales actually obtained have to bear all of the cost of getting them, and probably part of the cost of getting sales that you do get is the money expended trying to get sales that you do not get. I presume that is the attitude the Commission would take, although, so far as price differentials are concerned, it might not make very much difference.

MR. WELLINGTON: In a case where the Commission claims that the concern is allowing too much differential to the larger customers, it is hard for me to see as a practical matter why there would be any objection from the standpoint of the Commission to allocating salesmen's costs on the basis of dollars and cents of sales. On the other hand, in practically every instance, the concern developing the case would want to put such costs on a per call basis because the call basis would allocate a larger expense to the smaller customers and less to the larger customers, and therefore would help to justify the differential.

CHAIRMAN ANDERSON: Mr. Harry D'Almaine of Chicago has submitted a question. Mr. Wellington, will you answer it?

MR. WELLINGTON: "In establishing variable sales expense rates applicable to small versus large orders, on what basis would you charge the indirect sales expenses—at so much per sales dollar or at so much per salary dollar of the sales personnel involved?"

I do not think that question can be answered in any such simple terms. It seems to me that some of your general sales expenses will vary with sales dollars, some will vary with the sales personnel, some will vary with the cost per order taken, and some will vary with the cost per unit of shipment, such as per ton or per yard. For example, the sales manager and general sales supervision would probably be allocated in proportion to the total compensation of salesmen. The cost of recording sales may be partly in proportion to dollars of sales and partly in proportion to units of sales. The keeping of sales statistics, while similar to the recording of current sales, might be divided

not in proportion to current sales but in proportion to the current budget of sales or to some recent past period of sales. You may also have to make distinctions between various products or between various classifications of customers, if there are differences in selling expenses between different products or different classes of customers.

The question is much more complicated than would be indicated by the wording of the question itself. I do not think we can safely say that the general expenses should all be in proportion to sales dollars or that they should all be in proportion to the sales personnel or to salaries or commissions.

MR. OSTLUND: Here is a question by Mr. G. J. Lafferty, of Grand Rapids, Michigan: "Where a manufacturer publishes a volume rebate schedule to all his jobbers and a group of jobbers form a buying group to come under the higher discount bracket, would a jobber not in this group but in the same territory have recourse under the Robinson-Patman Act?"

It seems to me that is a question for a lawyer to settle rather than a cost accountant. I doubt if the question can be answered strictly with respect to the Robinson-Patman Act. I know that such buying clubs of jobbers do exist and that they get differentials which more than cover the cost of operating the clubs. I have not heard of any complaints that have arisen because of that fact. I should say that, so far at least, it is entirely a question of equity and expediency of operation, so far as the manufacturer is concerned.

My own observation of those situations does not give me any basis for making a dogmatic answer one way or the other. Possibly some of these other gentlemen have something to say on that point.

MR. SAWYER: I think much depends upon the way in which such groups buy. If the purchases are made in lots so that all of the savings contemplated in this volume rebate are achieved and actually earned, then I doubt very much whether there can be a successful complaint on it. On the other hand, if the net result of the buying pool is that the manufacturer is saddled with all of the expenses that normally would be involved in selling each member of the pool separately, then probably the objections could be sustained.

CHAIRMAN ANDERSON: We have one question left. I think we will have to say that this is the last one. This question comes from Mr. Wayne E. Pollard of Rockford. I will read it.

"A company sales department made a carload sale at carload price.

Their credit department would not permit a carload sale and released it in smaller lots, but at the carload price. Could this be construed as a violation of the Act?"

MR. TAGGART: I should think it might be considered a violation of the Act if the sale was actually made less-than-carload and the carload price was given. Other customers who bought in less-than-carload lots and had to pay a higher price might make a very justifiable complaint. That seems fairly clear, unless, of course, the company makes a regular practice of offering carload prices to anyone who will agree in advance to take a carload over a certain length of time. In that case, since customers are treated alike, there is nothing to worry about.

CHAIRMAN ANDERSON: The panel suggests that Mr. Giddings was off on the wrong foot in assuming that the Robinson-Patman Act is passé, and so they have delegated to Mr. Sawyer the pleasant duty of trying to refute that statement to impress upon you the fact that the Act is still very much alive.

MR. SAWYER: All I can add in that connection is this: The Federal Trade Commission can be commended in its approach to the enforcement or administration of the Robinson-Patman Act, in that they have not proceeded with a blare of trumpets and the beating of drums to cover the country immediately with a lot of proceedings. They have proceeded rather slowly. These early cases are being dealt with in great detail, very carefully, and the chances are that the record of the Commission will stand out as a constructive one as time goes on.

Naturally, the average business man seeing the statute on the books for two years or more without a great many cases immediately going to court, gets the impression that the Act is dying a slow death. I think those in contact with the Commission and those who watch the daily record of its proceedings realize that there is a very steady progress being made. It is one of those movements that will not mature overnight. It is going to take a long time, a decade or more, to achieve all of the concepts of the Act. The Sherman Law has been on the books for forty years or more and it is still unfolding its mysteries. The Robinson-Patman Act will develop slowly over the next few years before we realize that it is part of our business procedure.

CHAIRMAN ANDERSON: Gentlemen, we are honored today by having present from the Federal Trade Commission its accountant

in charge of investigations. He has been here during most of the sessions and I hope he has been interested in our proceedings. I should like to have Mr. W. J. Warmack stand up and take a bow.

I am very grateful for this attendance today. We of the panel approached this session with considerable misgiving. I apologize for keeping you here after four o'clock after stating that we would quit at four, but after all, I guess it is your fault. You furnished the questions. I should like to express our appreciation to these gentlemen of the panel who did so much work on this session. I assure you that I also appreciate very much your co-operation and your attendance here.

Now I will turn the meeting back to President Bill Marsh before this final session comes to a close.

PRESIDENT MARSH: Gentlemen, this closes our Nineteenth Conference. Again on behalf of the Officers and Directors, I want to express our appreciation to the Committee who have made this Convention so successful. First, to Tom Fleming, General Chairman of the Convention Committee and President-elect of the Chicago Chapter. Tom, will you stand up, please?

MR. FLEMING: May I say one word? It was only due to the co-operation of the people who helped us that we were able to do anything. We tried to do everything we could at night to keep you out of the sessions. It does not seem that we were able to keep you up all the time. Now we are going to let you loose when President Marsh gets through, and you will be on your own from then on.

PRESIDENT MARSH: I assure you, Tom, that you succeeded in doing just exactly what you aimed to do. We hope you will convey our thanks to the members of your Committee. Now I should like to have Arthur Gunnarson stand up. Mr. Gunnarson, you know, was the Chairman of the Program Committee which planned this splendid technical program for us.

MR. GUNNARSON: I think you ought to ask the other members of the Committee who are here to get up also. Mr. Austin and Mr. Anderson are here.

PRESIDENT MARSH: I certainly agree. Mr. Moore was forced to leave but will Mr. Austin and Mr. Anderson please stand up.

We are very grateful to you men for having planned and presented such a co-ordinated and interesting program. Speaking of praise, I think I ought to include the audience because you have been a delightful audience.

There being no further business, I now declare this Convention adjourned.

. . . The meeting adjourned at four-thirty o'clock . . .

